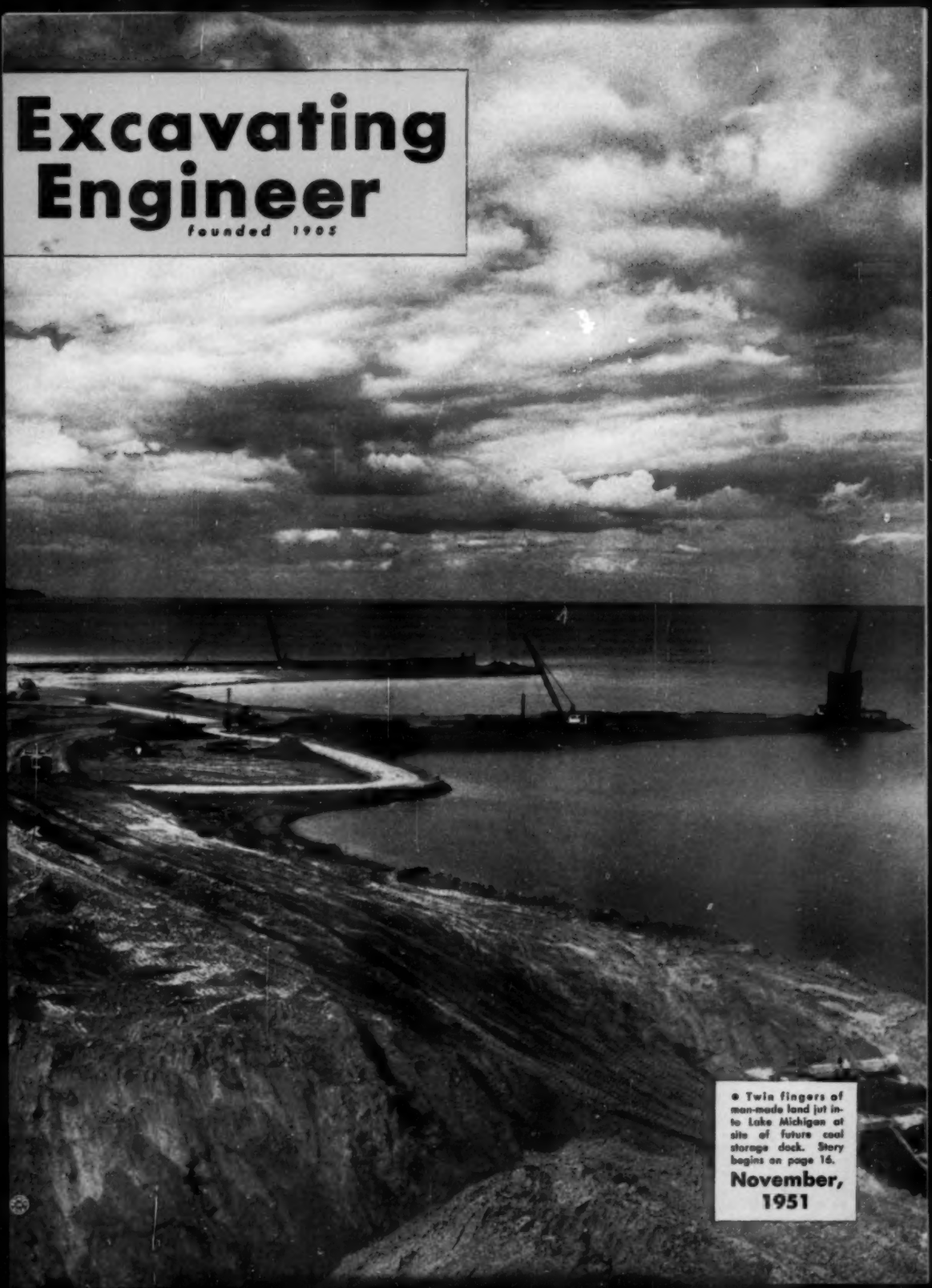
Excavating Engineer

founded 1905



• Twin fingers of man-made land jut into Lake Michigan at site of future coal storage dock. Story begins on page 16.

November, 1951

Save Valuable Working Time With Bucyrus-Erie Blast Hole Drills

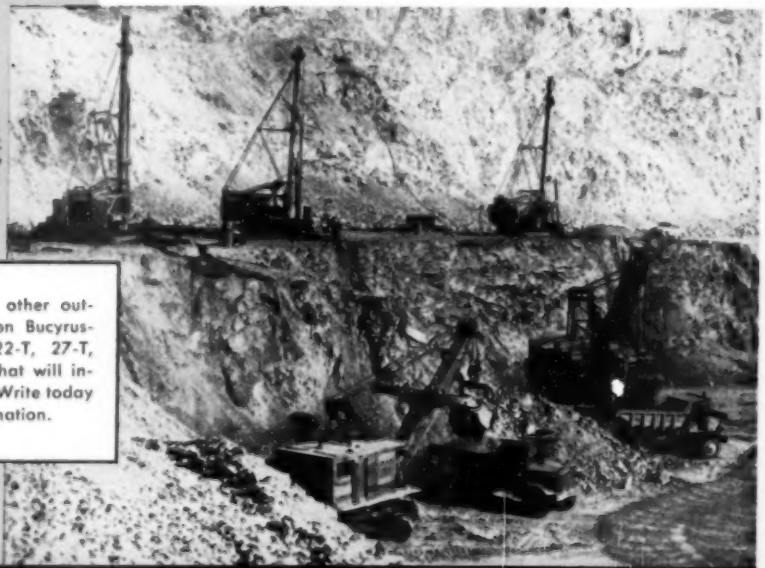
THE speed with which your blast hole drill can be set up and readied for work directly affects the tonnage of ore produced from your open pit mining operations — and correspondingly affects profits. Frequent set-ups and tool changes take up a considerable portion of your blast hole driller's time. But with a Bucyrus-Erie drill you change much of the costly moving and tool-changing delays to productive drilling time. Here's why:

1. Caterpiller-mounted Bucyrus-Eries move quickly between locations . . . travel over all types of ground surfaces, across rough pit floors, and up grades of better than 30%.

2. Set-ups and leveling are quick and easy, even under adverse ground conditions. Hydraulic jacks (standard equipment on the 42-T; optional on the 29-T) eliminate elaborate ground preparations, blocking and cribbing. Big savings in leveling time mean substantial increases in production.

3. Tool-changing time is reduced 30% to 50% with a built-in tool wrench, offered as standard equipment on the 27-T, 29-T and 42-T. The wrench is hand-operated on the 27-T and 29-T; power-driven on the 42-T.

In southern California three 29-T drills put down 9-in. blast holes in an open pit iron mine while Bucyrus-Erie shovels load ore to trucks.



There are many other outstanding features on Bucyrus-Erie drills — the 22-T, 27-T, 29-T and 42-T — that will interest you greatly. Write today for complete information.

45851C

BUCYRUS ERIE

South Milwaukee, Wisconsin

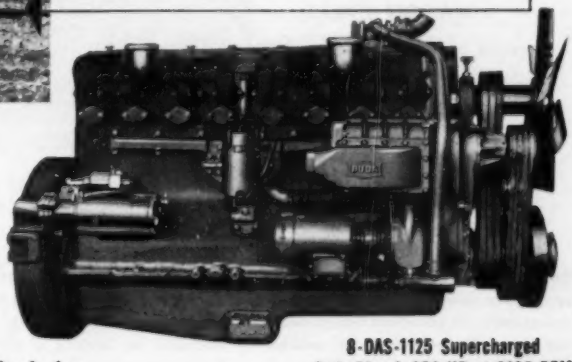
1125 Cu. In. Displacement BUDA DIESELS

gave Campbell & Collins the SPEED, POWER, STAMINA & YARDAGE needed for the Oahe Dam Job!

BUDA 8DCS-1125 Super Diesels power giant A Tournapulls on Oahe Dam job near Pierre, S. D.

Contractors like Campbell & Collins, who demand top performance from earthmoving equipment, know from experience that they can depend on Buda Diesels to stand up to tough job conditions, year after year and give low cost, trouble-free operation.

Extra power and greater lugging ability of heavy duty Buda 1125 Super Diesels make them ideal for powering big payoff equipment like A Tournapulls and Carryall Scrapers. Loads on the large Carryalls averaged 21 pay yards; haul cycles ran 1½ miles and the Buda-powered Tournapulls completed a round trip every 13.1 minutes. Performance like that keeps owners sold on Buda Diesels!



8-DAS-1125 Supercharged Buda Diesel, 350 HP at 2100 RPM

See your nearby Buda Distributor today. Ask about money-making, heavy duty dyna-swirl engines for your equipment. Write for Bulletins and specification data. No obligation. The Buda Company, Harvey, Illinois.

a Power-Full and Dependable Name in Engines... **BUDA**

BC-14

Manufacturers of Diesel and Gasoline Engines, Maintenance of Way Products, Lifting Jacks, Earth Drills and Material Handling Equipment

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has no equal for speeding up construction jobs at rock bottom cost

1 GYRO-FLOW 600 ROTARY AIR COMPRESSOR

cuts operating and maintenance costs for air power

2 TWO FM-3 WAGON DRILLS,

served by one Gyro-Flow 600, save time and effort for drilling in any position

3 CARSET JACKBITS increase drilling speeds 50% or more—practically eliminate bit changes

THE NEW GYRO-FLOW 600 is the sensational new portable using a *rotary compressor.* Its advanced design—without valves, pistons or clutch—assures a new high in trouble-free performance with minimum attention and maintenance. "Air-Glide Capacity Control" gives smooth, step-less regulation over the entire capacity range. Matched to a powerful GM diesel engine, the Gyro-Flow 600 delivers full 600 cfm at 100 psi, yet weighs only 9500 lbs. ready to run.

THE NEW FM-3 WAGON DRILLS combine maximum drilling power and hole-cleaning ability with complete flexibility for drilling in any position. They handle 6-foot steel changes and drill holes up to 24 feet deep. The yoke is quickly raised or lowered by a powerful worm gear arrangement that is self-locking and slip-proof. The tower can be inclined at any desired angle and rotated at right angles to the carriage. Wheels can be turned 90° for line-holeing close to a wall.

CARSET JACKBITS, set with Carboloy inserts, have repeatedly proved their ability to out-drill steel bits by as much as 400 feet to one! They maintain uniformly high drilling speed for the full depth of the hole—reduce air consumption at least 40%—save wear and tear on drills and steels and practically eliminate bit changes. Gauge wear is negligible and uniform diameter holes save up to 30% on dynamite.

Be sure and ask for complete information.

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founded 1905

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This man knows that his Bethlehem rope is giving him a good return on every dollar it cost him.

He isn't just guessing. He keeps records on the doings of all his wire ropes; figures that tell him the date they go to work, how much they accomplish, and when they're replaced. From his figures he can see which brand is *doing the most* for him over a period of time. He doesn't rely on general impressions or rough estimates. He *knows!*

Bethlehem urges that all users of wire rope do likewise—keep records of wire rope performance, expressed in units of work. How many ton-miles a rope accounts for; how many yards of rock it moves, how many cars of coal it hauls up a slope, etc. By doing so, the user can compare one brand against another; see for himself which brand is costing him the *least* for the actual work it does.

We know that in any such comparisons, Bethlehem wire rope will prove an outstanding value. Stack it against the field; keep your own figures. They'll tell you, in black and white, that a dollar invested in Bethlehem rope buys a mighty big dollar's worth of service.

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ON the Northwest, the Gooseneck Pullshovel Boom, is a proved unit. Remember, when listening to what you are told about equipment that there is more than *the outward shape* involved in securing final results without "down time" in all types of digging over long periods of time.

Behind the Northwest Pullshovel Design are years of experience. If we were to claim the manufacture of more Pullshovels than all other manufacturers put together we wouldn't miss it by very much! The Lock Joint Pipe Company, who have laid enough pipe and dug enough ditch to encircle the world six times, have practically standardized on Northwests.

No other Pullshovel has such a record of endorsement and experience behind it—and more important, Northwest has combined a group of advantages with proved design to give you a leader whether operating as a Pullshovel, Shovel, Crane or Dragline.

You can plan to have proved, job-tested, equipment. Plan to have a Northwest!

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CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

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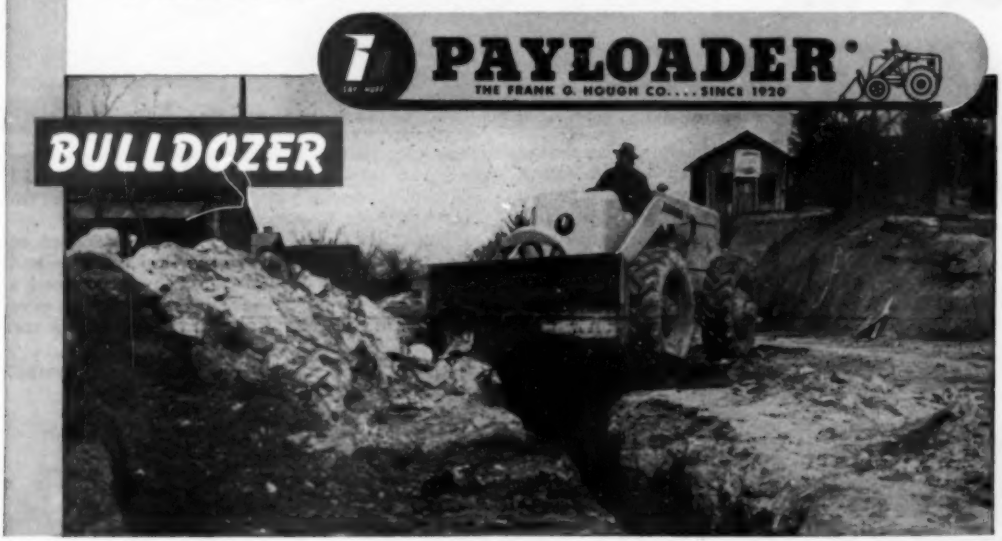
Get the Job Done FAST....

This big 1½ yd. HM PAYLOADER with its combination of large pneumatic tires and 4-wheel drive gives you fast-action traction on all kinds of footing — on sand, stone, snow, clay or mud. It gives you crawler-like traction at far less maintenance expense, PLUS speed when you want it and the ability to work on pavements and to travel over streets and highways at 16 m.p.h.

This PAYLOADER also gives you easy operation and maneuvering speed with its power-boosted steering and full-reversing transmission having four speeds in reverse as well as forward. Once you see the Model HM in action you'll know why hundreds of contractors are its enthusiastic owners and boosters. Full information on this 1½ cu. yd. model and other size PAYLOADERS is yours for the asking. The Frank G. Hough Co., 708 Sunnyside Avenue, Libertyville, Illinois.



Loading stone from the quarry, this GM Diesel-powered 1½-yard Koehring handles 150 tons an hour on less than 4½ gallons of fuel.

20% HIGHER PRODUCTION at ⅓ the fuel cost

Cowan Stone Company, Cowan, Tennessee, wanted another make of Diesel when they bought their Koehring 605 shovel in 1948. But it was readily available with a GM Diesel engine, so they took it.

And when they recently converted a 21-year-old 1¼-yard shovel from gasoline to Diesel power, what engine do you think they installed? Another GM Diesel, of course!

With its smooth, steady flow of power, this veteran machine now stock-piles 125 yards an hour—approximately 20% more than it did before—and uses only 3 gallons of Diesel fuel per hour as compared to 7 gallons of gas.

Figure the savings in terms of your own operation. Then call in your nearby GM Diesel distributor. Ask him to show you how simple and economical it is to convert to this modern 2-cycle Diesel power.

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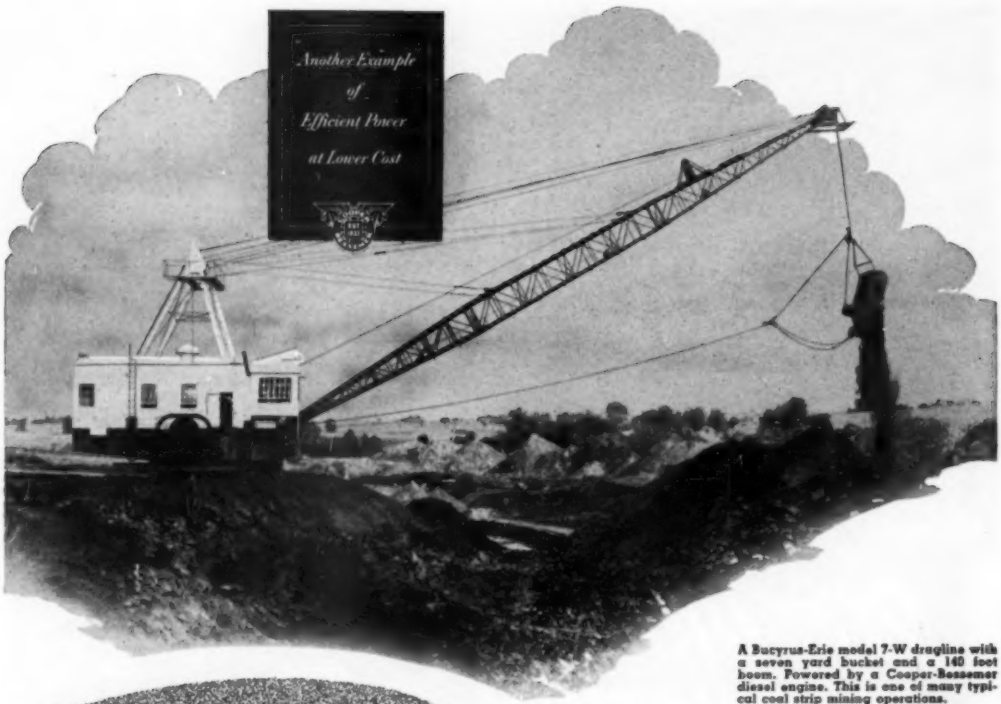
SINGLE ENGINES... Up to 275 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS... Up to 800 H.P.

GENERAL MOTORS

GM GENERAL MOTORS DIESEL POWER

DIESEL BRAWN WITHOUT THE BULK



A Bucyrus-Erie model 7-W dragline with a seven yard bucket and a 140 foot boom. Powered by a Cooper-Bessemer diesel engine. This is one of many typical coal strip mining operations.

EXTREME FLEXIBILITY

ANOTHER Cooper-Bessemer BONUS VALUE

● There's probably no other application that demands as much diesel flexibility as dragline service. It means day after day of split-second no-load-to-full-load operation at nearly constant governor-controlled speed.

Because Cooper-Bessemer diesels excel in flexibility, in *fast* response and *smooth* behavior at any load, they're preferred power on the biggest, toughest dragline jobs. It's the result of *new*, often exclusive features built into heavy duty diesels by one of the nation's *oldest* engine builders.

Cooper-Bessemer builds diesels and gas engines specially designed for all heavy duty applications—stationary, marine, locomotive and other mobile services. If you have a stake in power, get *all* the facts. Check with the nearest Cooper-Bessemer office.

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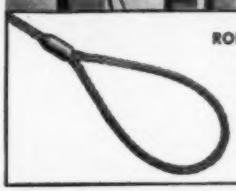
WIRE ROPE



ROEBLING ALL-PURPOSE SLINGS with the Tapered Sleeve Splice come to you ready for the job. They cost less than tucked splices... have the full strength of the rope. Send for the full story.

On every type of equipment you'll do best with Roebling

"BLUE CENTER" STEEL wire rope is an exclusive Roebling development. It has to pass the most stringent tests for strength, fatigue and abrasion resistance . . . gives rope the extra life that spells economies. Besides, Roebling Preforming assures you top performance on the job. "Blue Center" Preformed is easy to handle . . . has better spooling qualities . . . reduces vibration and whipping.

Roebling makes a complete line of wire rope . . . offers the right grade and construction for every installation. Have your Roebling Field Man help choose the *right* rope for your equipment. Get his advice on the correct use and maintenance of wire rope. It is based on performance records on thousands of installations. John A. Roebling's Sons Company, Trenton 2, New Jersey.

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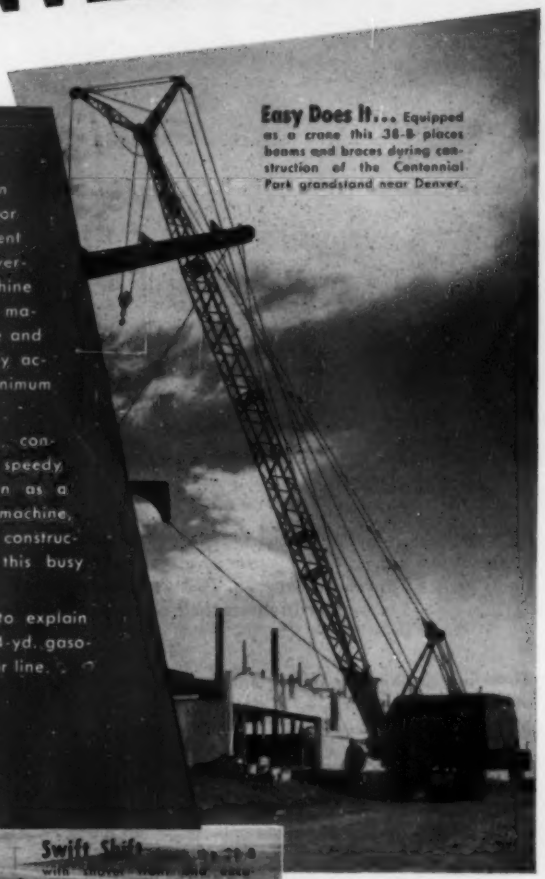
BID MORE CONTRACTS with Bucyrus-Erie CONVERTIBILITY

YOU can bid more contracts when you own a quickly convertible Bucyrus-Erie excavator because the most effective front end equipment is easily available for a variety of jobs. Conversions are quickly made in the field — machine changes are few, enabling you to match the machine to the job in a matter of hours. Crane and shovel booms are easily switched to readily accessible boom-foot connections with a minimum of time and effort.

Pictured at work here is a Denver, Colo., contractor making good use of Bucyrus-Erie's speedy convertibility with his 1½ yd. 38-B shown as a shovel, crane and dragline. One basic machine, easily changed over at the work site to three construction operations, means more profits for this busy Denver concern.

Your Bucyrus-Erie distributor will be glad to explain the money making advantages of the ⅜ to 4-yd. gasoline, diesel and single motor electric excavator line.



Easy Does It... Equipped as a crane this 38-B places booms and braces during construction of the Centennial Park grandstand near Denver.

Quick Changeover finds the same machine working as a dragline on a new reservoir at Marston Lake, Colo.

Swift Shift with shovel work and [illegible] for the Marston Lake reservoir.

BUCYRUS ERIE

South Milwaukee, Wisconsin

Most Compared Most Preferred

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E. J. HANLEY
President, Allegheny Ludlum Steel Corporation

"Systematic Savings offer the surest means of future security and we know of no better systematic savings plan than that afforded by payroll deduction purchases of U.S. Defense Bonds. Nearly nine out of each ten of our employees are helping their country while they save by participating in this plan."

There are three easily understood reasons why 88% of Allegheny Ludlum's 14,378 employees are enrolled in the Payroll Savings Plan:

- the recognition by Mr. Hanley and his associates of the Payroll Savings Plan as a major contribution to America's Defense effort . . . an important, stabilizing factor in our national economy . . . a road to personal security for Allegheny Ludlum employees.

- Allegheny Ludlum's person-to-person canvass of employees, which put an application blank for the Payroll Savings Plan in the hands of every man and woman on the company payroll.

- the patriotism and sound sense of the Allegheny Ludlum employees who know that every dollar they invest *each month* in U.S. Defense Bonds is a double duty dollar—it helps to keep America strong . . . it builds personal security for the employee.

If employee participation in *your* Payroll Savings Plan is less than 50% . . . or if you are one of the relatively few industrial companies that does not have a Payroll Savings Plan, phone, wire or write *today* to Savings Bond Division, U.S. Treasury Department, Suite 700, Washington Building, Washington, D.C. You will get all the assistance you may need to place your company among the thousands of companies that have 60, 70, 80%, even 88% participation in the Plan That Protects.

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Q HOW MANY DAYS IN A WEEK?

A "TWENTY-ONE,"

says
Geo. W. Longfellow

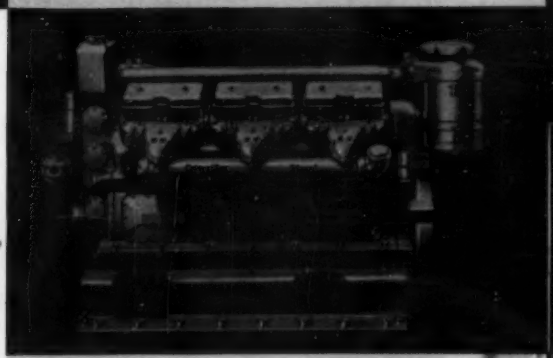
Mr. Longfellow is right—when you look upon twenty-four-hour going as the equivalent of three normal working days. That is the equipment-torturing schedule followed on the channel relocation project at East Alton, Ill.

Speaking with pride of the recently installed "Cat" D386 Engine that drives his big Bucyrus-Monighan walking dragline, Mr. Longfellow said: "She's working a '21-day' week, has plenty of power —and can really take it."

Running continuously for long stretches at varying capacities is one of the performance feats so typical of "Caterpillar" Engines. Delivering their full horsepower output whenever called upon is another. Compactness, easy installation, economical fuel consumption, minimum maintenance costs, and almost incredibly long life are still other advantages for high production and maximum profits. They are swaying contractors everywhere toward specifying "Cat" Engines with the new equipment they buy and to replace "ailing" or inadequate units in old equipment.

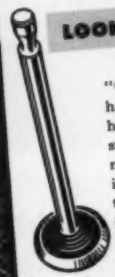
A "Cat" Diesel may be just the thing for giving *your* crane, shovel, dragline or dredge a new lease on life—or the extra power it needs to make it more productive. Let your "Caterpillar" dealer make a survey and a cost estimate. He's as near as your telephone.

CATERPILLAR REG. U.S. PAT. OFF. • **PEORIA, ILLINOIS**



The powerful "Cat" D386 installed in the Longfellow dragline develops 400 hp. max.; 360 hp. rated; 320 hp. continuous, at 1200 rpm. and with full equipment except radiator fan.

LOOK UNDER THE HIDE



"Caterpillar" intake and exhaust valves are made of highly alloyed, heat-resistant steels. Their ample size, close machining and heat-treat specifications have resulted in thousands of hours of trouble-free valve operation. Valve and rocker arm designs are matched to reduce wear. *Look under the hide for "Caterpillar" quality and long-life features—they may not show on the outside but they show up in performance.*

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DIESEL ENGINES • TRACTORS
MOTOR GRADERS • EARTHMOVING EQUIPMENT

To insure lowest cost per yard moved, or ton lifted . . . compare all excavator and crane information with "KOEHRING WORK CAPACITY". Your Koehring distributor has specific figures that will let you prove for yourself the biggest profit-earning value.

K124

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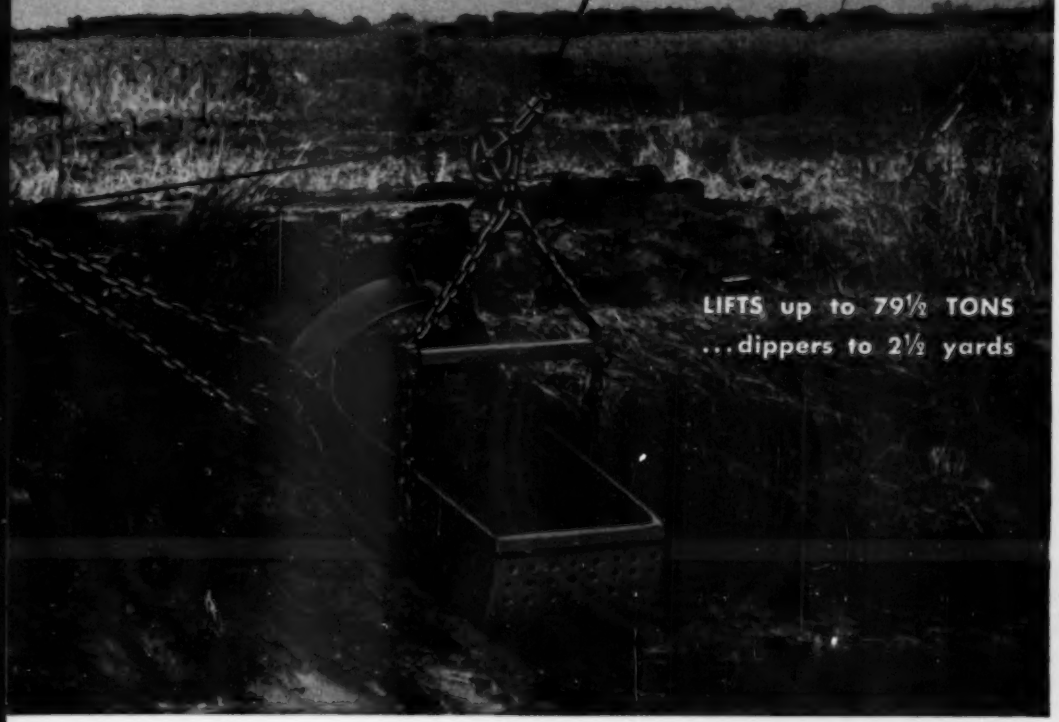
Measure by

KOEHRING WORK CAPACITY"

when you compare shovels and cranes



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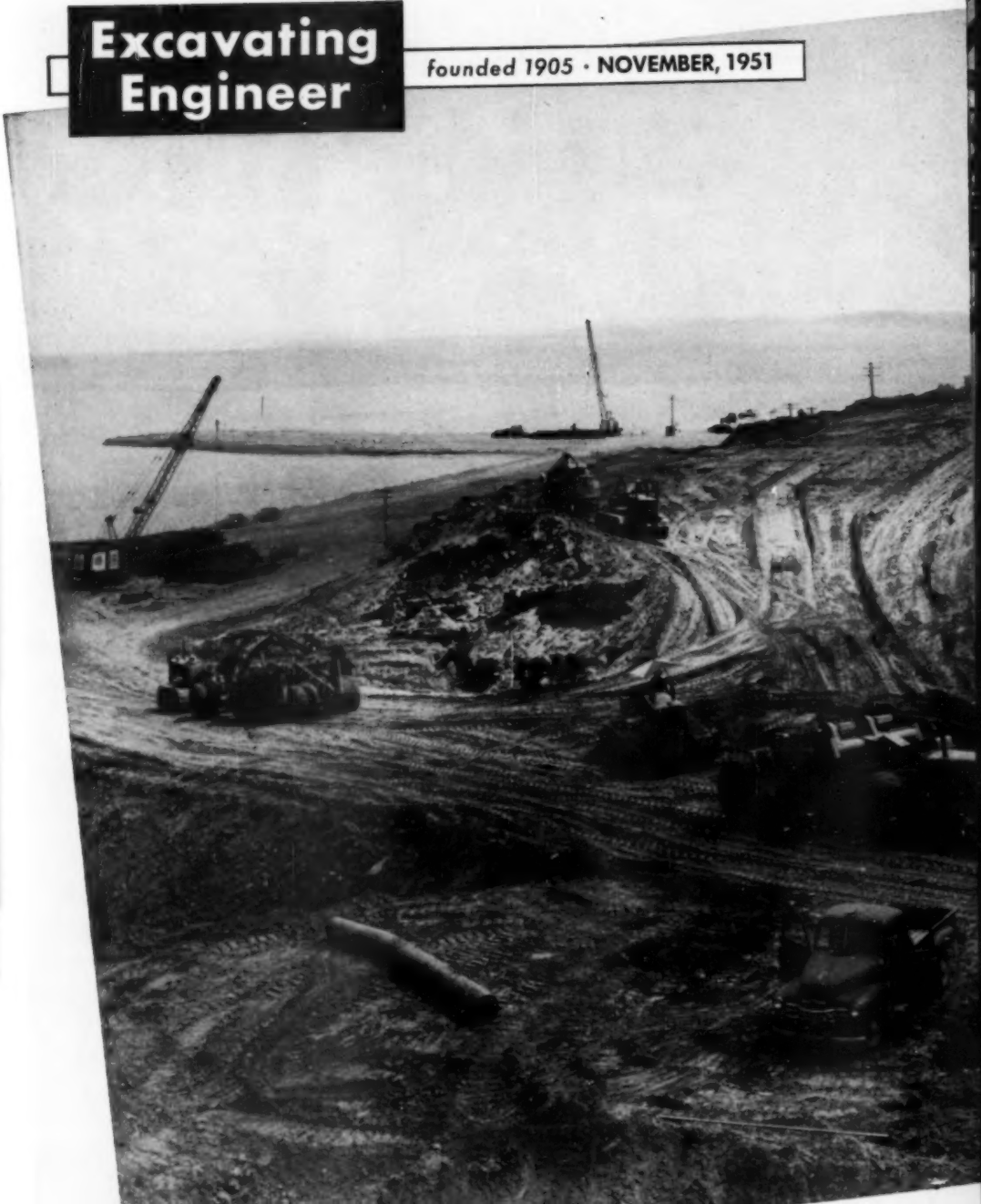
founded 1905 · NOVEMBER, 1951



Earth-Fill Dock Features Power Plant Construction

Cutting down a Lake Michigan bluff furnishes fill in construction of coal storage dock for Wisconsin Electric Power Company's new 500,000-kw power plant south of Milwaukee. Tractor-scraper units are moving 827,000 yards of dirt into the lake this year before building construction starts.

THE largest construction job in the 55-year history of the Wisconsin Electric Power Co. is under way on the shore of Lake Michigan. To keep pace with the growing need of industry and of increasing population, a new electric power plant is being built in the town of Oak Creek, about 14 miles south of the industrial heart of Milwaukee.

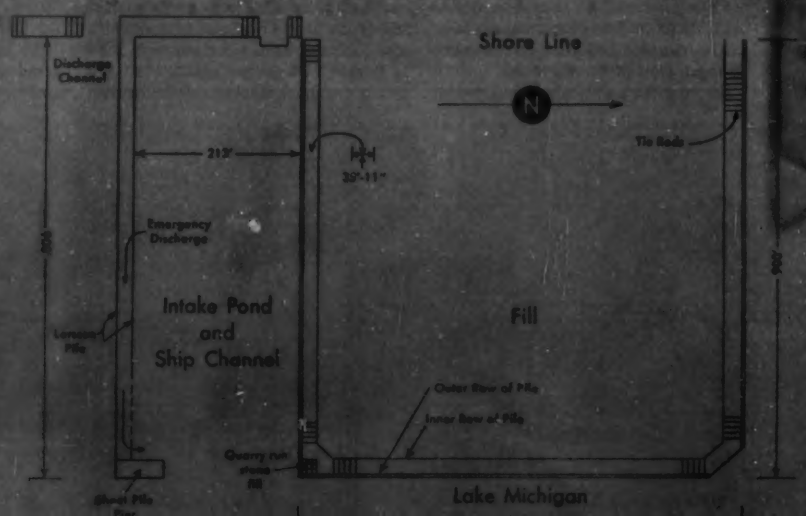
The new plant, which will initially consist of two power units, each with approximately 120,000-kw output, is planned for expansion to an eventual four units with an output of 500,000 kw. The first unit is expected to be in operation in December, 1952.

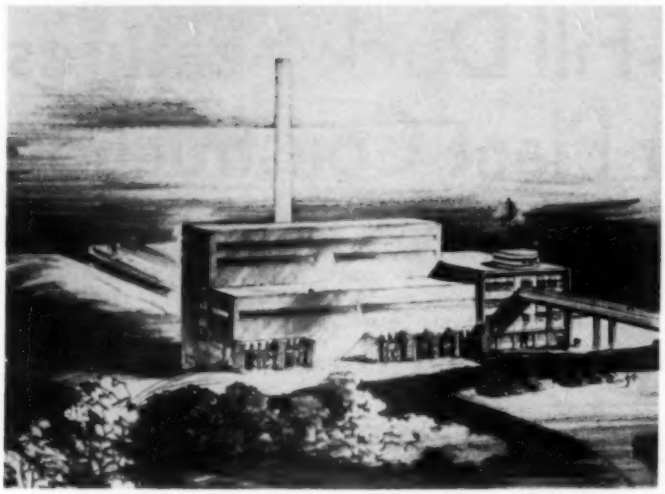
Plans for this project and all company installations are drawn in the electric company engineering offices, under the direction of H. E. Mundt. Survey of the 412-acre tract was completed during the 1950-51 winter and ground was broken on the job May 4.

Work presently under way consists of a cut and fill operation for a coal storage dock onto which self-unloading coal boats will discharge cargo, while moored in a 200 foot wide channel. The channel will be dredged to a depth of 26 feet to accommodate loaded boats.

When finished, the dock will extend

● Left: South finger of fill reaches into Lake Michigan in this early stage view of Wisconsin Electric Power Company's new coal dock. LeTourneau scrapers, Allis-Chalmers and Caterpillar tractors move dirt from cut off to right. Bucyrus-Erie 38-B crane handles pile at left while Lima crane does same on fill. Below: Diagram of dock shows pile pattern.





• Artist's drawing of Oak Creek power plant shows coal dock at left where work is now under way.

into the lake for 900 feet at a width of 900 feet. It will be protected on three sides by a double row of steel sheet piling. Approximately 827 yards of clay and sand fill will be required to extend the shoreline. Depth of fill will vary from a few feet at shoreline to approximately 18 feet at the dock extremity.

The nature of the shoreline at the selected location for the new plant makes the excavating job a big one. Land rises abruptly from waterline to 95 feet, and it is necessary to move

space was leveled for a parking lot, the hill was cut away and sloped toward the lake at a 27° angle. A road will be constructed to pass behind the power plant on the first bench at elevation +33.00. The building will be built up from dock level on foundations dug below dock level. A connecting ramp will be built from parking lot level elevation to the top of the office building.

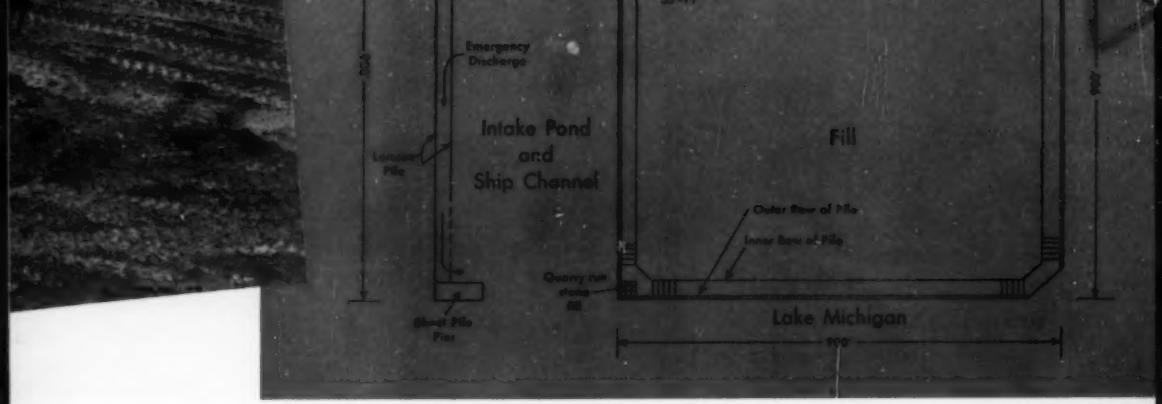
A gulley near the north end of the project is being widened and reduced to a grade of 4% for a road entrance directly to the dock, and a third access

building supplies to the site and in an emergency for hauling coal.

The excavation, grading, and dock construction will be accomplished under contracts to two companies who will do all the excavating and hauling, dock work which includes pile setting and driving and dredging for ship channel and turning basin. Dock construction is under contract with Merritt-Chapman & Scott, Cleveland, O., and Badger State and R. W. Const. Companies, Milwaukee, Wis. in a joint venture as Merritt-Badger, and A. B. Lynch Co., Milwaukee, Wis.

Equipment handling present excavation includes four tractor-scraper teams made up of a Bucyrus-Erie B-250 22-yd. (struck) scraper drawn by an International TD-24 crawler, two model W and one FP LeTourneau scrapers drawn by D8 Caterpillar crawlers, and seven electric LeTourneau rubber-mounted tractor-scraper units.

To assist the scrapers in rough going, there are two Allis-Chalmers HD-19 and one HD-20 pushers. Clean up work and keeping the haul roads in shape is accomplished with one D7 dozer, one model C Tournadozer, a No. 12 Allis-Chalmers motor grader, one Austin Western motor grader and one Austin Western pullgrader with power con-



day. Four parts and shop wagons house repair equipment and a 6x6 GMC grease truck hauls a four gun alemite system to its duties. Also included in the regular equipment of the A. F. Keyes Co., excavating contractor for Merritt Badger Co., is a 2-ton Chevrolet sprinkler truck of 1,300-gal. capacity for wetting down haul roads.

All excavating equipment is shifted around to where it can be used to best advantage. Generally on the steeper slopes tractor drawn scrapers are utilized until the grade is such that other units can be brought in. At all times, however, the large number of units is split into two or three groups to prevent congestion either on the cut or on the fill.

Start Projections First

Fill started with two finger-like projections. This allowed pile setting to begin and to keep pace with the dock as it extends.

Fill averages 6,000 yards of material per day and has reached as high as 11,000 yards with a haul ranging from around 900 feet to more than 1,500 feet. Excavation, which began on May 15, is generally up to schedule and November 15 is the anticipated completion date. As of August 21, approximately 400,000 yards had been moved. It was just about the halfway point for both time and material.

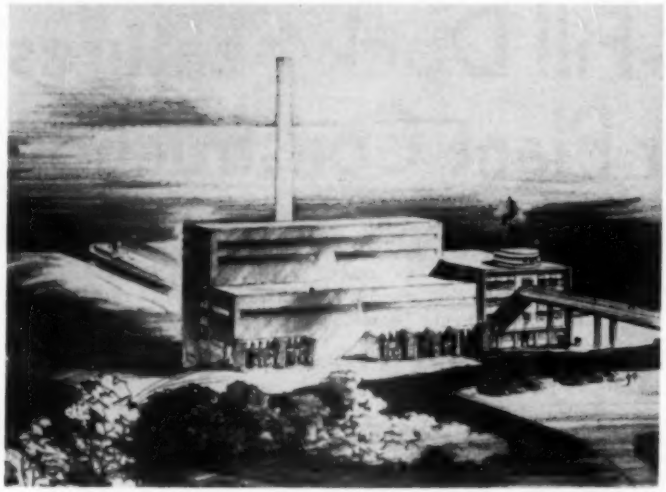
The dock, which will hold approximately 1 million tons of coal, enough to

• Left: From left to right are Henry Hershleb, engineer in charge of survey, grading and fill for Wisconsin Electric Power Co.; A. F. Keyes, excavating contractor; V. L. Rock, superintendent for Merritt-Badger Corp.; and Thomas J. Murphy engineer in charge of dock construction for electric company. Right: Howard Thwaits, engineer in charge of power plant construction for electric company.

to keep coal on the docks from being washed away.

Because sufficient pile was not available in this country, due to steel allocations for defense, approximately 130,000 feet of a total of approximately 200,000 feet of the pile being used on the job is Larssen U pile which was brought from Germany. The first shipments went to New York and entrained there for the trip to the job site. The pile is MZ and M116 American made.

On the north side and the front of the dock there is an outer row of piles. This row is driven so that a projection of approximately eight feet remains above water level which is to protect the dock face from washing away. Length of pile on this outer wall ranges from 24 feet near shore to 44 feet at the southeast corner where the water is deepest.



• Artist's drawing of Oak Creek power plant shows coal dock at left where work is now under way.

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The nature of the shoreline at the selected location for the new plant makes the excavating job a big one. Land rises abruptly from waterline to 95 feet, and it is necessary to move part of the bluff to construct benches for the plant and to provide roads. A total of 6,500 feet of permanent macadam road will be laid. The cut operation provides fill for the dock.

From the top of the bluff, where space was leveled for a parking lot, the hill was cut away and sloped toward the lake at a 27° angle. A road will be constructed to pass behind the power plant on the first bench at elevation +33.00. The building will be built up from dock level on foundations dug below dock level. A connecting ramp will be built from parking lot level elevation to the top of the office building.

A gulley near the north end of the project is being widened and reduced to a grade of 4% for a road entrance directly to the dock, and a third access will be provided by a cut running from south of the dock site to angle gradually away from shore and connect with the Chicago and Northwestern R.R. This will be brought to a 2½ to 3% grade and spur tracks laid for hauling building supplies to the site and in an emergency for hauling coal.

The excavation, grading, and dock construction will be accomplished under contracts to two companies who will do all the excavating and hauling, dock work which includes pile setting and driving and dredging for ship channel and turning basin. Dock construction is under contract with Merritt-Chapman & Scott, Cleveland, O., and Badger State and R. W. Const. Companies, Milwaukee, Wis. in a joint venture as Merritt-Badger, and A. B. Lynch Co., Milwaukee, Wis.

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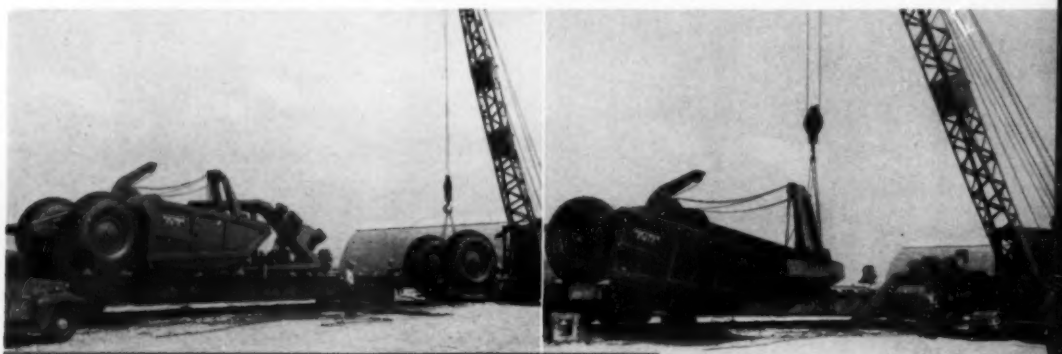
Service During Lunch

Maintenance of this equipment is handled during the short lunch stop and after the regular 10-hour work



• A new Bucyrus-Erie B-250 scraper arrives on the job. Kneeling crews unbolt front wheel assembly. Next, bowl assembly is lowered to ground. Front and rear sections are connected and finally the 22-yd. (struck) scraper goes to work with an International TD-24 crawler.

day. Four parts and shop wagons house repair equipment and a 6x6 GMC grease truck hauls a four gun alemite system to its duties. Also included in the regular equipment of the A. F. Keyes Co., excavating contractor for Merritt Badger Co., is a 2-ton Chevrolet sprinkler truck of 1,300-gal. capacity for wetting down haul roads.

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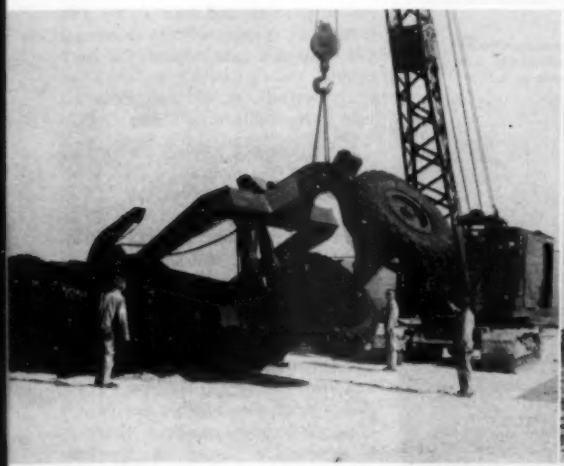
The dock, which will hold approximately 1 million tons of coal, enough to keep the power plant operating through the winter, is being protected on the three sides that touch Lake Michigan with a double row of piles. This is for protection from earth wash as well as to keep coal on the docks from being washed away.

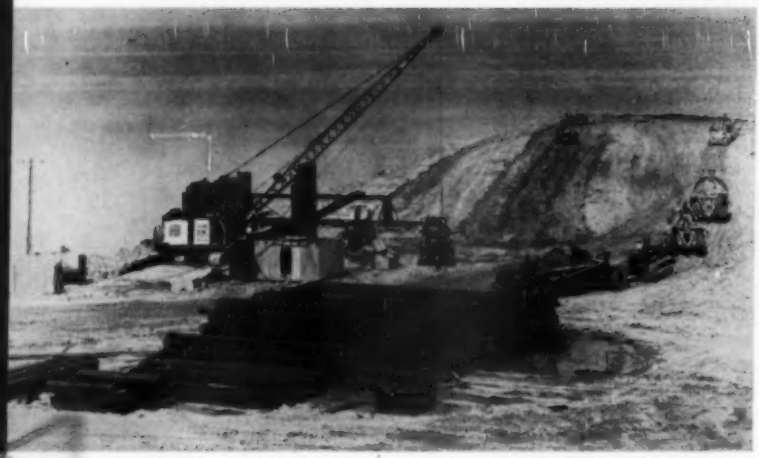
• Left: From left to right are Henry Hershlek, engineer in charge of survey, grading and fill for Wisconsin Electric Power Co.; A. F. Keyes, excavating contractor; V. L. Rock, superintendent for Merritt-Badger Corp.; and Thomas J. Murphy engineer in charge of dock construction for electric company. Right: Howard Thwaits, engineer in charge of power plant construction for electric company.

Because sufficient pile was not available in this country, due to steel allocations for defense, approximately 130,000 feet of a total of approximately 200,000 feet of the pile being used on the job is Larssen U pile which was brought from Germany. The first shipments went to New York and entrained there for the trip to the job site. The last load went directly to Milwaukee by boat thence by train to about a half mile from the job site where a Koehring crane unloads to trucks which haul directly to the job site. The rest of the pile is MZ and M116 American made.

On the north side and the front of the dock there is an outer row of piles. This row is driven so that a projection of approximately eight feet remains above water level which is to protect the dock face from washing away. Length of pile on this outer wall ranges from 24 feet near shore to 44 feet at the southeast corner where the water is deepest.

Approximately 30 feet in from the outer pile a second row is placed. This inner or anchor and protection pile is to prevent high waves from washing onto the dock and carrying coal back into





• Above: Bucyrus-Erie crane has started putting down 900-ft. rows of pile along north side of future dock. LeTourneau and Bucyrus-Erie scrapers move dirt to extend fill while Caterpillar D-7 bulldozer and Tournadozer grade.

• Above: Pile driving progresses on north projection. Bucyrus-Erie crane is now well out on fill and is followed by ¾-yd. Lima clamshell excavating for tie rod installation. Below: South projection of earth has Lima crane driving pile, Northwest moving up to set inner row of pile and another Lima stockpiling.

the lake. On the sides most vulnerable to high waves and stormy waters, anchor and protection piles are driven to a top elevation of 16 feet. The two rows are connected with 2½-in. tie rods which are set every seven feet. Tie rods run through double channel wales and are bolted through 15 inch x 9 inch x 1¼ inch thick plate washers. A Hough front end loader transports the tie rods from stock pile to Oster threading machine and then to point of positioning.

A Bucyrus-Erie 38-B crane with 80-ft. boom unloads, sets and drives both anchor and protection pile along the dock's north side while a Lima ¾-yd. clamshell excavates for and sets tie rods. First, a row of outer piles is set to keep the fill in place and prevent caving. Then the 38-B moves up and sets protection pile. Steam for the pile hammer, as well as for the hammers working on the south face, comes from two Vapor Heating E 3500 boilers.

Along the north and east walls and approximately 170 feet on the eastern end of the south wall the top elevation of piling is constant; protection pile remains at 16 feet top elevation and anchor pile at 8 feet. All protection pile is Larssen U pile and outer pile is partly Larssen but mostly U. S. Steel Co. M116 and MZ-38. Along the remainder of the south wall, about 730 feet, top pile elevation changes to one foot for the anchor pile and eight feet for face pile. Larssen pile from 12 feet to 21 feet long is used in the anchor wall and 44 foot MZ-38 in the face wall.

Space between the two rows of pile will be filled to the top of the face pile with a slope of 40:1 from anchor pile to face pile and from anchor pile to dock a 2:1 slope will run down to a 3-ft. elevation; the top of the dock surface.

Haul Pile from Siding

A Northwest K-6 drives anchor wall sheeting at this point and a 2-yd. Lima with 80-ft. boom drives the MZ-38 face piling while a Lima with 40-ft. boom unloads sheeting from trucks. Two pole trucks, one GMC and one Ford F-8 haul sheeting from train to job site. Pile driving is being done with three 50-C Super Vulcan pile hammers and two McKiernan-Terry 9-B-3 pile hammers which are used where needed.

Approximately 220 feet south of the dock's south face another double row of piles is to be set parallel to the dock, to serve a dual purpose. A ship chan-

nel will be formed which, with the outer row of piles at an elevation of six feet and the inner row at one foot elevation, will provide a berth for unloading ships, and emergency recirculating channel.

Heat Channel Water

Near the outer end of this double row the top of the piling will be kept approximately nine feet below lake level in order to divert warm water into the ship channel which also acts as an intake channel for condensing water. Recirculation of hot water will only be done in case ice forms around the mouth of the intake tunnel.

The emergency discharge channel is to be filled with a top layer of stone to an approximate elevation of —4.5 feet below water level. The outer wall is to be braced with stone with a 1½:1 slope and the inner wall bracing will be at a slope of 2:1. Additional bracing between the two rows is to be accomplished with 12-in. No. 74 CBP wale and struts set on 15-ft. centers.

The intake pond and ship channel will be dredged to a depth of 26 feet which is sufficient to float the largest coal boats expected to dock here. To assist docking a turning basin will be dredged to —26 feet at the southeast corner of the dock and a turning basin pier placed so ships can tie up to swing in any desired direction. These accommodations will handle boats up to 600 feet long with 70-ft. beam and carrying 18,000 tons of coal.

Included in present contract are construction of a sheet pile protection pier at the east end of the emergency discharge channel which will direct warm-discharged water back into the intake basin only when necessary to prevent the basin from freezing. There will also be protection piles along shore between the south dock face and the emergency discharge channel and protection piles along shore and adjacent to the regular discharge channel which is immediately south of the emergency discharge and ship channel.

The project, including buildings and the first two power units, is expected to reach a cost of approximately $50 million and with plans for two additional units, the cost will reach about $100 million.

Will Dredge Basin

Intake and discharge channels are to be included as part of the building foundation excavation work which is expected to begin about the middle of October. Channel and turning basin dredging will start early next spring with an expected completion date sometime in August of next year.

The building will be 167 feet wide by 235 feet long and will include a boiler room, turbine room, pump house, office and service building. The second power unit is expected to be in operation in spring of 1954 and when all four units are operating, the plant will be larger than any present unit in the state of Wisconsin.

The project is under Wisconsin Electric Power Co. supervision: E. A. Bolzendahl, superintendent of building construction, with Howard Thwaits, Electric Co. engineer in charge of power plant construction, Henry Hershleb Electric Co. engineer in charge of survey, grading and filling and Thomas J. Murphy, Electric Co. engineer, supervising dock construction.

The R. W. Const. Co. and Badger State Const. Co., co-adventurers with Merritt-Chapman & Scott Corp. are doing the dock construction work and operating as Merritt-Badger. The A. F. Keyes Co., South Milwaukee, Wis., has the excavation under contract from the A. B. Lynch Co. The A. F. Keyes Co., which is a partnership with Keyes' sons, William and Robert, has as general foreman, J. L. Hake and Pete Matovich, grading foreman. Mr. V. L. Rock is superintendent for Merritt-Badger.

• Tie rod, threaded on Oster threading machine, is lifted out by Hough front end loader. The 2½-in. rods join inner and outer rows of pile.

• Taking cut from high ground to get better class of material to mix with silt fill are a Bucyrus-Erie B-250 scraper with International TD-24 crawler and LeTourneau scraper drawn by Caterpillar tractor. Grade from cut to dock site is exceptionally steep.

• LaGrange pit of Thorstenberg & Tamborello — a Bucyrus-Erie 44-B dragline swings a 2-yd. Hendrix bucketful of gravel to Euclid bottom-dump wagon. Firm runs five plants near Colorado river to become one of top producers in area.

Variety of Equipment Produces Colorado River Gravel

by Edward F. London

Long deposit which saddles Colorado River has been vital stone and sand source for Texas' Gulf Coast over 40-year period. Draglines, an aerial tramway installation and a dredge excavate material in multi-plant operation. Old machines in good condition keep output up.

LYING in an area 50 miles long and from three to five miles wide on either side of the Colorado River, between LaGrange and Eagle Lake, Texas, a deposit of sand and gravel has played a major role in the mushrooming industrial and residential development of Texas' Gulf Coast area.

Since 1912, nearly every building project needing concrete aggregate in Beaumont, Houston, Galveston and points south has drawn on the Colorado River sand and gravel beds.

Back in 1945, 22,461 cars of sand and gravel left the Colorado River pits, most of it bound for Houston. In 1950, showing an increase of 150%, over 54,000 cars holding from 40 to 70 tons each were loaded by four main operators working the deposits.

Horton & Horton, a Houston concern, uses the fixed type of operation to excavate gravel. After 10 feet of overburden has been removed and a 30 to 40-ft. strata of sand and gravel exposed, a company built dredge with a 16-in. suction pump swings in an 80 foot wide arc moving sand and gravel about 2,000 feet to the processing plant near Eagle Lake. Some of the cuts are 800 feet wide and 2,000 feet long, usually full of water because of the high water table in the area.

The material travels through the 16-in. line to the dewatering plant, where surplus sand and water are removed. The sand is loaded into railroad cars, and the gravel goes to a log-washer for the removal of hard clay. The gravel is re-washed, screened and crushed from the surge or stockpile.

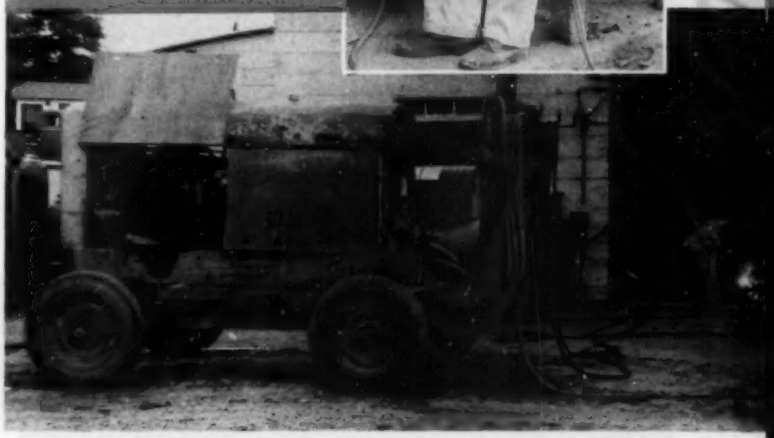
Parker Bros., another Houston firm, uses an aerial tramway one mile long to transport the material across the Colorado River. On this mile long system, 57 buckets holding 1 2/10 yards of sand or gravel, dump every 19 seconds on the stockpile. This material is crushed, screened and washed, and loaded to railroad cars for shipment.

The Texas Construction & Material Co., also of Houston, uses a movable type of operation. A contractor-built dragline swinging a 3-yd. Hendrix bucket on a 100-ft. boom, loads to a portable wash and screen plant, mounted on tracks.

• Above: Washing and screening plant at LaGrange installation loads to railroad hopper cars. Caterpillar R-5 crawler switches cars with cable. Northwest 4 clamshell loads from stockpile.

• Right: Manager of the LaGrange plant, Ray C. Lehmann, supervises a staff of 30 men.

• Bottom: Worn part is built up at LaGrange shop with a 300 amp. Lincoln welder powered by a Hercules gas engine.



One of the largest operators in the area is Thorstenberg & Tamborello who own and operate five large plants, utilizing both portable and stationary equipment at each plant. In 1950, these five plants excavated and shipped over two million tons of sand and gravel.

As both Russell Thorstenberg and Frank Tamborello, owners, spend much of their time in the sales and organization end of the business the five plants are under the supervision of R. L. McMillian, general superintendent.

From his office in Columbus, Texas, McMillian commutes north to the two plants located at LaGrange and Fayetteville, and south to the other three plants near Eagle Lake. A distance of 30 miles separates the LaGrange and Ramsay plants.

Each of these plants is self sustaining and operated under a plant manager. We shall cover this operation by starting at the LaGrange plant, which features both movable and stationary types of equipment.

Here at LaGrange, a Bucyrus-Erie 44-B dragline, swinging a 2-yd. Hendrix bucket on a 70-ft. boom, powered by 175-hp Buda Diesel, has been working two ten hour shifts, six days a week, for four of the six years the plant has been in operation.

Digging a 50 foot wide cut, on a

• Roland Woolst, Tamberg plant manager, watches Bucyrus-Erie 37-B dragline load 1¾-yd. bucket of gravel to Ford truck. Galion motor grader keeps haul road in good shape.

gradual curve about 3,500 feet long, in fairly level country, the 44-B handles the stripping operation at night under floodlights. To get at the gravel, it is necessary to strip three to 10 feet of overburden which is cast into the previous cut.

During the day shift, which starts at 6:30 A. M., the 44-B excavates a very good grade of sand and gravel averaging from four to 10 feet in depth.

This material is loaded to four model 58-W, 13-yd. bottom-dump Euclids at the rate of 150 tph, and hauled to a stationary wash and screen plant about a mile from the pit. The hauls average about 16 minutes for the round trip over access roads constantly patrolled by a Galion motor grader powered by International gas engine. As the 44-B moves backwards making new cuts, it is also necessary to build a new haul road every so often.

At the other end of the road, the Euclids dump directly on top of a feeder hopper which deposits material on a 30-in. rubber conveyor belt running on an incline to the scrubber and barrel screen. Everything under 1½ inches in size drops to two Ty-Rock screens set side by side.

After being washed, all aggregate from 1½ inches down to ¼ inch travels through two 3x10 Tyler vibrator 3-deck screens, and then drops to railroad cars for shipping. Everything above 1½ inch goes through a 1236 Austin-Western jaw crusher, also an 18x30 Pioneer double-row crusher and then is returned to the conveyor system.

Sand is conveyed to a 3x8 single deck Simplicity screen sized for masonry sand, loaded to railroad cars or stockpiled. The residue goes to a spoil pile where it is later salvaged for concrete sand.

Push Button Plant

Built under the supervision of McMillian, who also designed it, the wash and screen plant is powered by General Electric motors ranging from three to 125 hp. One man operates the plant by push-button control, with the aid of an oiler.

Now one of the largest producers of sand and gravel in Texas, Thorstenberg & Tamborello first produced railroad ballast. Today, the LaGrange plant cuts sand and gravel to six different sizes, as well as making asphalt aggregate. Sand and gravel on order is loaded directly to cars of the Missouri, Kansas & Texas Railroad for shipment to Houston or other points. Excess material is stockpiled a short distance south of the stationary plant, with a 301 Koehring dragline swinging a ¾-yd. Owen bucket and a Northwest 4 dragline with a 1-yd. Erie clamshell bucket.

A Caterpillar tractor, model R-5, is used near the plant to move loaded cars by cable from under the stationary plant when filled, to a point where the railroad takes over.

Thirty men are employed at the LaGrange plant under Plant Manager Roy C. Lehmann. Three of the men make up the maintenance crew, who perform welding and other repairs at the shop located near the wash plant.

No blasting or drilling is required at these four plants. McMillian said the exceptionally sharp sand and high quality gravel is abundant at all plants.

• This is the Tamberg washing and screening plant. Ford trucks drop loads in conveyor at right.

• At Jay Ray plant #1, a 3-yd. Bucyrus-Monighan 3-W dragline digs gravel. Walker loads to overhead plant which washes, screens and crushes gravel, then drops it to waiting hopper cars. General Manager R. L. McMillian at right inspects layout. American-Marsh centrifugal pump on floats keeps plant supplied with wash water.

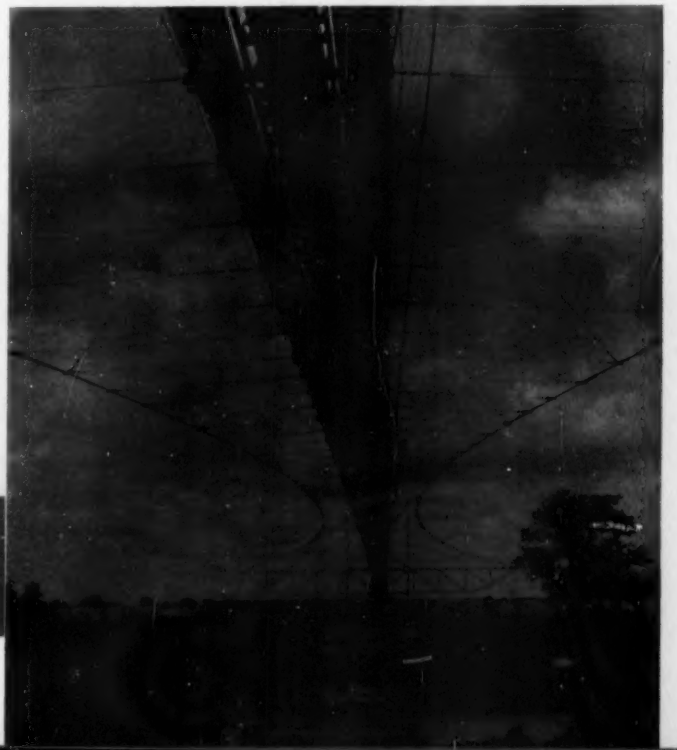
On the other side of the Colorado River, about 15 miles east and north of LaGrange, is the Tamberg plant of Thorstenberg & Tamborello. Under the supervision of Roland Woehst, plant manager, 26 men and an assortment of portable and stationary equipment have less of an excavating problem because the gravel outcrops and no stripping is required. However, a small amount of tree-clearing is necessary; trees are snaked out with an International TD-18 crawler mounting a Bucyrus-Erie bulldozer, and pulled to spoil area.

The excavating job at this plant is handled by a Bucyrus-Erie 37-B, swinging a 1¾-yd. Hendrix bucket with a 50-ft. boom. The 37-B loads to seven 6-yd. owner-built bottom-dump trailers mounted on 1942 Ford chassis.

Over access roads kept in good shape by a Galion motor grader, the trucks haul about 1½ miles to a stationary company-built wash and screen plant. Similar to the one at LaGrange, this plant washes, grades and screens road gravel and road topper almost exclusively, crushing ½ to 1-in. size. Designed by McMillian, this plant is also supplied by the trucks dumping directly over the feeder hopper.

Only one 10-hour daytime shift is required to fill the railroad cars which are hauled over two miles of company-owned track to the main line. Surplus material, not required for pending orders is stockpiled by two excavators: a Bay City dragline with ¾-yd. Owen bucket, powered by Climax gas engine, and a 301 Koehring powered by General Motors Diesel and swinging a ¾-yd. Erie clamshell bucket. One mechanic at the Tamberg repair shop handles the necessary welding and other repairs.

Following the same route used by McMillian in making his rounds, we



• Suspension bridge carries 30-in. conveyor across Colorado river at Jay Ray plant #2. Pulley centers are 800 feet apart. Belt carries excavated gravel to processing plant which is on opposite side from pit.

• Left: Material passes from belt to radial stacker at Jay Ray Plant #2. Stockpiles lie atop tunnel from which another conveyor takes gravel to wash and screen plant. Outriggers prevent belt ripping. Right: An oldtimer in good shape, this Bucyrus-Erie class 230 dragline with 8-yd. bucket excavates gravel at Jay Ray #2. Aluminum alloy boom, 175 feet long, gives machine plenty of reach.

leave the Tamberg plant over a county road connecting with State Highway 71 to Columbus, and then by Highway 90-A to the 300-acre JayRay plant located about 10 miles from Eagle Lake.

This plant has an excavating operation on each side of the Colorado River, designated JayRay No. 1, and JayRay No. 2. Plant No. 1 was started three years ago, and plant No. 2 had its beginning in October, 1950.

Located about ¼ mile from the river, plant No. 1 is a portable operation. Here, a 3-W Bucyrus-Monighan dragline swings a 3-yd. Hendrix bucket from a 102-ft. boom. Powered by model L Cummins Diesel, this machine works two 10-hour shifts, six days a week. At night under floodlights the dragline strips overburden from seven to 14 feet in depth, casting this material into the previous cut. In the day shift the dragline works the gravel which is from seven to 15 feet thick at this point. This material is used for concrete aggregate.

Excavating 200 tons of gravel an hour, the 3-W loads to a screen and wash plant on wheels which allow it to move about 20 feet daily. The material is dumped into the hopper on top of the company built plant, and after being washed, screened and crushed to specification size, drops directly to Southern Pacific Railroad cars, which are moved by 35-ton Plymouth locomotives, powered by 225-hp LeRoi gas engines. Four of these locomotives do all the switching over the two miles of company-owned track at the JayRay plant. One of these locomotives can handle eight loaded cars up a 1% grade.

As each 100 foot wide cut at JayRay No. 1 is deepened, it fills with water, which is handled by an American-Marsh 6x8 centrifugal pump, with a capacity of 1,500 gpm. This pump is mounted on pontoons in the cut, and furnishes the water for the portable plant.

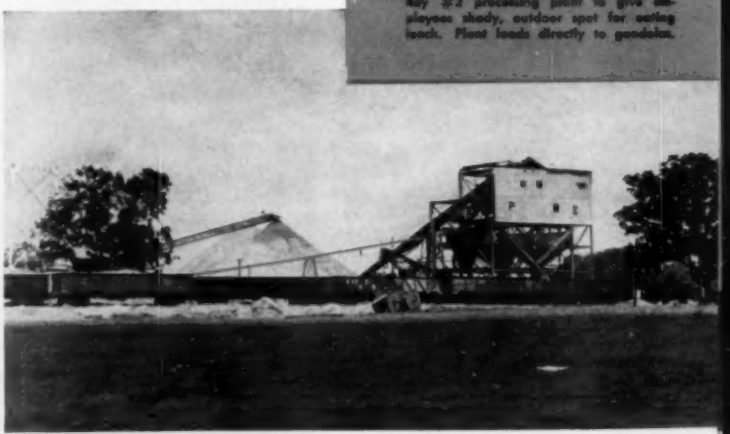
This portable set-up travels back and forth in a gradual arc about 3,500 feet long on level ground. As new cuts are developed, the standard gauge track is moved and relaid by a special crew, along the edge of each new cut.

On the same side of the Colorado River is the stationary screen and wash unit of JayRay plant No. 2. The largest of all Thorstenberg & Tamborello's stationary plants, this was also designed by McMillian.

Modernize Steamer

Material comes into this screen and wash plant from the pit located on the opposite side of the river, and is excavated by equipment rebuilt and modified under the direction of McMillian.

Here, a Class 230 Bucyrus-Erie steam-operated shovel has been modernized into a unit that causes Mc-



• Left: Trees were conserved at Jay Ray #2 processing plant to give employees shady, outdoor spot for eating lunch. Plant loads directly to gondolas.

Millian to glow with pride. It is equipped with a 175-ft. aluminum alloy boom which swings an 8-yd. Hendrix perforated bucket. It is powered by a No. 567 12-cylinder General Motors Diesel, which at 530 rpm develops 600 hp. The hoist and drag drums are pulled directly off engine by silent chain drive. A DC 100-kw generator, driven by V-belts from the engine, powers a 75-hp DC swing motor.

Operate Two Shifts

Running two 10-hour shifts, this dragline strips 16 feet of overburden during the night shift, and at 6:30 A. M. every morning starts work on the gravel deposit which is 25 feet thick at present.

The cuts here are 175 feet wide and 3,500 feet long, and, of course, fill with water when the water table is reached. Excavating 500 tons an hour, the Class 230 loads directly to 14 standard 40-yd. bottom-dump railroad cars owned by the company.

When several of the cars are filled at the pit, they are pulled by the 35-ton Plymouth locomotive 1½ miles over company-owned tracks to a point directly over a series of hoppers located in the pit side of the river.

The pit-run material is pulled out through radial gates onto a 36-in. feeder belt conveyor 90 feet long, which discharges to a 30-in. rubber conveyor belt on 880-ft. pulley centers passing to the other side of the river over a suspension bridge, with a clear span of 640 feet. The bridge conveyor system is powered by three electric motors, totaling 90 hp.

This belt delivers material to a 36-in. radial stacker belt on an incline 120 feet long, discharging on a surge pile. The gravel is then conveyed from a tunnel under the surge pile to the wash and screen plant by a 30-in. belt on 300-ft. pulley centers. The base of the radial stacker runs on tracks built in a short arc, and is operated by push-button control from the central control room.

Oversize primary crushing is done by a Cedar Rapids double-jaw crusher powered by 100-hp electric motor. The secondary crusher is a 3-ft. Symons short head cone crusher powered by 75-hp electric motor. Screening and washing is accomplished by one 5x14 Simplicity triple deck screen and one 5x12 Simplicity triple deck screen, powered by 20-hp electric motors. The material then drops from the stationary plant directly to railroad cars for shipment, or stockpiling.

The suspension bridge, designed by Mathews & Keenan, San Antonio engineers, was built by Thorstenberg & Tamborello personnel supervised by McMillian. Much of the steel for the bridge was fabricated and erected by JayRay personnel, who seem to be able to perform many types of work usually handled by specialists.

Arms Reduce Sway

Steel towers on both sides of the river support 2⅛-in. main cables anchored on each side of the river in reinforced concrete slabs. Extending from both sides of each tower are wind arms of structural steel supporting stabilizing 1½-in. steel cable, which keeps the bridge from swaying sideways in a high wind which might swoop down the Colorado, and, of course, the conveyor belt which handles 500 tons of gravel per hour must be kept on an even keel.

Stockpiling at JayRay is handled with a model 550 Lima dragline, swinging a 1½-yd. Esco clamshell bucket, on a 50-ft. boom, and powered by Cummins Diesel, and a Koehring 301 dragline, with ¾-yd. Owen bucket, 40-ft. boom and General Motors Diesel power.

An Adams model 51 motor grader maintains the access roads at this plant.

In the river, not far from the bridge and mounted on a pontoon, a Gould 8-in. centrifugal pump, powered by a

Continued on page 58

• Below: Winch and cable system spots railroad cars under Jay Ray #2 loading chute. Right: Frank Fojtik, head mechanic, runs lathe at Ramsey plant's repair shop.

Solve Drainage Problem At McChord Air Base

by Justin A. Mace

Diverting a creek bed and floating two prefabricated 12-ft. culverts, each 1,500 feet long, into place in water-filled channel were features of McChord air field runway extension job. Final positioning was directed by J. A. Woodworth, Woodworth & Company, Inc., Tacoma, Wash., by radio and loudspeaker.

UNDER the military construction program at McChord Air Force Base near Tacoma, Wash., Corps of Engineers plans called for extension of the North-South runway to a length of 11,100 feet.

To accomplish this runway extension, two huge, corrugated steel culverts, 12 feet in diameter and 1,500 feet long, had to be placed in a water-filled creek bed. The culverts are to carry the substantial normal flow and heavy flood runoff of Clover Creek as it crosses below the new runway. Corrugated sheet steel plates, 3/16-inch thick, furnished by the Armco Steel Corp., were preshaped. Eight sheets, approximately five feet wide and eight feet long, were required for the complete circle and they were put together with a 4-in. overlap.

A new, straight channel was first excavated by the contractor, Woodworth & Co., Inc., Tacoma, to an approximate width of 50 feet and length of 1,600 feet, generally paralleling the original creek bed. The average distance between channel and creek bed was approximately 100 feet. Three 1½-yd. Lima 604 draglines and one Lima 304 dragline with a ¾-yd. bucket were used to dig the new channel. About 10 days were required for the excavation and approximately 75,000 yards of material was removed. Water seeping from Clover Creek filled the excavation to a depth of six to eight feet.

• Top left: Clover Creek is on right; new channel left is being deepened by dragline to receive Armco culvert under assembly on opposite bank.

• Top right: Starting down the ways, culvert is launched with three Lima 604's and one 304 pulling while four Caterpillar crawlers, two D7's and two D8's, keep lines tight.

• J. A. Woodworth, vice president of contracting firm, gives coordinating directions over loudspeaker to cranes and tractors during positionng.

• Below left: First section of culvert is in place in new channel. Note marker pilings to keep culverts in place until covered.

• Below right: Culverts are in position and covered. North-South runway will extend to 11,100 feet over culvert. Air force barracks and hangars can be seen in background.

• More than 700,000 yards of material were moved in a cut and fill operation to complete runway extension. Here six LeTourneau tractor-scraper combinations and a pusher tractor are shown on the job.

Along one edge and slightly above the pool an area was leveled where the huge steel pipes were to be fabricated.

Tube Built on Banks

The steel sheets were delivered to the site and the invert, securely bolted together, was laid out on wooden ties placed on the leveled bench beside the new creek channel. Lima cranes lifted the side sections and held them in place while crews bolted the overlapping edges together. Another crew fabricated three separate pieces to make up the top section. This section was then swung into place as one piece and bolted tight. Using this system, fabrication of a single culvert was accomplished at the rate of approximately 200 feet per day.

Another crew armed with Ingersoll-Rand 534 automatic air wrenches followed close behind tightly securing each piece.

Improvise Launching Method

The most difficult engineering problem was to launch the 1,500-ft. culvert as a unit and place it in position. Definite data were not available that a pipe of this length and size could be launched in one piece and stay afloat long enough to be set in place.

To further insure against collapse, carpenters braced the culvert inside at 6-ft. centers with 6 x 6 timbers. Bulkheads also were placed in each end to make the culvert as buoyant as possible.

Seven Caterpillar D8 tractors were located on one bank with four of the Lima cranes on the opposite bank.

Continued on page 64

• Runway approach area was cleared of 526 acres of virgin timber. One of three portable saw mills used by Lige Dickson Co., Tacoma, to do the job is shown here.

Bigger and Better

SIDE-DUMPS

▲ **Model TD-1222H Trailer**
Double-bottom automatic drop-door, hydraulic side-dump hauling 45 tons at a cement plant.

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A. Teichert & Sons tackle huge highway job on U. S. 99 in California mountains

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They're digging into the rough, rocky hills with six Big Red TD-24s . . . charging in with International power to move over a million yards of boulder-filled earth—doze out cuts down to 350 feet deep—reroute a creek channel to eliminate present bridges—turn today's three-lane U. S. Highway 99 into a four-lane traffic-separated superhighway.

Teichert chooses TD-24s for the job because they're the Champs for this grueling, heavy-duty work. Here's why:

TD-24 Power—148 maximum horsepower at the drawbar, more than any other crawler on the market. Moves more dirt per hour.

TD-24 Speed—8 forward speeds, 8 reverse. Moves loads faster, gets out and gets in again faster for a faster work cycle.

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1,200,000 YARDS TO MOVE—and one of A. Teichert's International TD-24s gets at it. Among crawler tractors, the Big Red TD-24 is the Champ, with more power and speed to move more paydirt per day.

News from the Field

Construction Firm Issues Staff Biography

A 75-year-old eastern construction firm broke tradition recently in a piece of advertising literature.

Booth & Flinn Co., of Pittsburgh, Pa., is distributing among customers a new brochure in which the chief attention is given to the firm's supervisory personnel. In the construction business, advertising has always emphasized big jobs completed or company reputation, equipment available or financial strength. However, the new Booth & Flinn brochure says, in effect: "The men of our staff are our chief asset. And, so, we'd like to do a little bragging about our men."

The brochure carries biographies and large portrait photographs of the company's 16 top superintendents and foremen. Each man's construction specialties and experience are explained. There will be some eyebrows lifted among construction men at this Booth & Flinn advertising. In construction, "stealing" key personnel from competitors has been common practice. Accordingly, construction firms have been reluctant to boast about their organizations.

But Booth & Flinn now uses as a slogan "Men with construction know-how," and stakes its sales story on its staff.

Right now, Booth & Flinn is completing its work as general contractor on the $5 million North Bridge which spans the mile-wide Susquehanna River at Harrisburg, Pa. In the past 10 years, Booth & Flinn has fulfilled 300 construction contracts whose total value was more than $50 million.

Copper Exploration Contract Approved

A contract involving an expenditure of more than a half million dollars to explore for reserves of copper in the Upper Michigan peninsula has been approved by the Defense Minerals Administration of the Department of the Interior.

Calumet and Hecla Consolidated Copper Co., Calumet, Mich., has entered into a $568,193 contract to explore for copper on numerous properties in Houghton and Keweenaw Counties. The government will contribute $284,097 or 50% of the cost.

Scheduled for completion within two years, the project will involve underground drifting for extensions of presently-developed ore bodies and surface trenching across known lodes to determine the presence of commercial minerals.

Trenching will be done across outcrops of the Iroquois lode in Houghton County and across outcrops of the Ashbed, Calumet Amygdaloid, Kearsarge Amygdaloid and other lodes in Keweenaw County. Underground drifting will be conducted on various levels of the Iroquois and Kearsarge lodes.

Experiment with Air-Gravel Concrete

A lightweight concrete recently developed by R. C. Valore, Jr. and W. C. Green of the National Bureau of Standards substitutes air bubbles for sand. Suitable for the construction of monolithic walls and other elements of small structures, this "air-gravel concrete" is particularly adaptable to the construction of small buildings. The many tiny air bubbles enclosed within the material not only replace the sand used in ordinary dense concrete, but also make the product lighter in weight, a better insulator against heat or cold, and more resistant to water penetration.

Concrete normally contains a coarse aggregate such as gravel or crushed stone held together by a binder of mortar consisting of sand and cement-water paste. In the air-gravel concrete the fine aggregate or sand is replaced by air bubbles, which act as a "lubricant" and produce a very workable mixture. High-air-content concrete is prepared in conventional mixing equipment in the normal way, except that an indus-

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● U. S. Army "Dukws" are unloaded by a Bucyrus-Erie 15-B crane after bringing supplies to shore from ships which are docked out in Pusan Harbor, Korea. The "Dukws" are a General Motors product.

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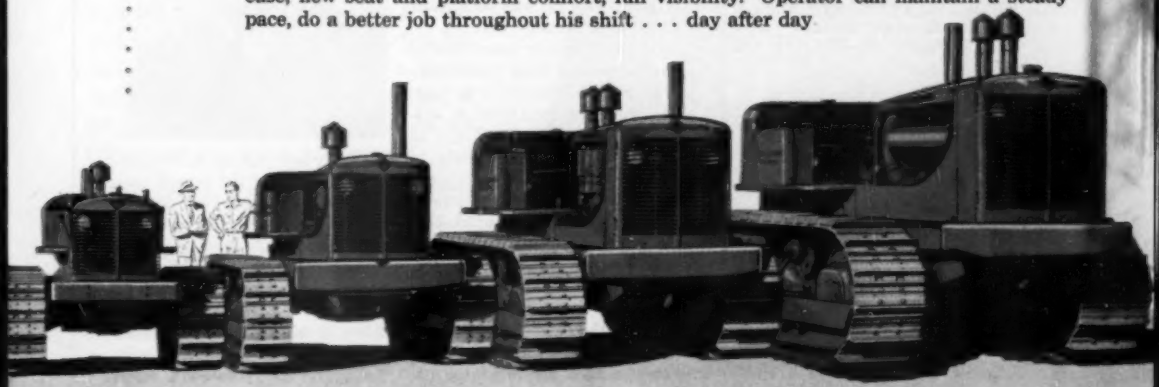
The Newest, Finest Tractor Line on Earth!

DESIGNED FOR YOUR JOB These Allis-Chalmers tractors are *new from the ground up* . . . without compromise anywhere in design or material. They are built to give you outstanding performance on any job, with any equipment—drawn or mounted. Fully matched line of Allied equipment!

BUILT TO "TAKE IT" These are the finest tractors ever built . . . with ample capacity and strength in every part! You can depend on them to take the loads and jolts of today's jobs . . . because they are modern tractors built for the most gruelling operating conditions. They will more than measure up to your expectations!

EASY TO SERVICE Adjustments are easier . . . lubrication simplified and lube periods greatly extended. Mechanics say these tractors are the easiest to service and repair. This all adds up to less down time, more producing time . . . longer tractor life at less upkeep cost.

EASY TO OPERATE Conveniently located controls respond to the slightest effort . . . and are operated in the same familiar way — nothing tricky to "catch on to." There is new shifting ease, new seat and platform comfort, full visibility. Operator can maintain a steady pace, do a better job throughout his shift . . . day after day



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40.26 drawbar hp.
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HD-9
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109 drawbar hp.
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Hydraulic Torque Converter Drive
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trial aerating agent or a detergent is added to the mix to cause it to foam by entraining finely-divided air cells in the cement-water paste. Entrained air may constitute up to 45% of the volume of the concrete prepared at the bureau, and "pea gravel" forms the dense aggregate.

One of the important functions of fine aggregate sand in conventional concrete is to produce workability, which facilitates placing in forms and assures homogeneity in structural members. Results of an investigation at NBS indicate that the replacement of conventional fine aggregate by entrained air likewise produces workable mixtures having relatively low water-cement ratios. The mixtures studied consisted of a high-early-strength Portland cement, siliceous pea gravel (No. 4 to ⅜-in. sieve fraction), water, and an air-entraining agent. Two different air-entraining agents (foam stabilizers) were used: agent V, a proprietary neutralized resin; and agent X, a proprietary sodium lauryl sulfate-type detergent. The falling action of the gravel particles during mixing in an ordinary rotating tilt-drum mixer produced the entrainment of air in the cement-water paste, and the air-entraining agent rendered the foamed paste stable.

Air contents as high as 45% were found possible in concretes containing no sand, while there appeared to be a "ceiling" of about 30% in the air content of experimental mixtures containing both sand and gravel. The compressive strength was sensitive to variations in air content; an increase of 1% in air content was generally accompanied by a decrease of about 100 pounds psi in compressive strength.

While the compressive strengths were only one-fourth to one-fifth the values obtained for nonaerated concretes, the moisture properties and

C. L. Best

C. L. Best, pioneer inventor and tractor builder, died September 22, 1951, at San Francisco, Calif., at the age of 73. One of the founders of Caterpillar Tractor Co., he was chairman of the board and member of the executive committee at the time of his death. He was born April 21, 1878 in Albany, Ore.

Mr. Best was the son of Daniel Best, a pioneer West Coast manufacturer who traveled from Keokuk, Iowa, in the 1850's to seek his fortune. C. L., or "Leo," as he was known affectionately to his friends, at the age of 13 spent considerable time at his father's factory, the Best Manufacturing Co. which produced grain cleaners. He was 18 when he was named buyer and by the time he was 20, he was superintendent.

When the elder Best later disposed of his business, Leo decided to open his own farm machinery factory and did so in 1910 at Elmhurst, Calif. He formed the C. L. Best Tractor Co. and began making gasoline wheel tractors. In 1913 his company entered the field of gasoline powered track-type tractors.

Mr. Best continued as president of his firm until 1925 when it and the Holt Manufacturing Co. were merged to form Caterpillar Tractor Co. At that time the Holt firm had its main plant at Stockton and the branch factory was at Peoria. Best became chairman of the board of the new organization.

Although not as active as in former years, he has continued to contribute engineering ideas. When he built a new home about a year ago at Walnut Creek, Calif., he incorporated a room which he fondly referred to as his "engineering department." There he spent many hours drawing proposed designs and new types of track mechanisms for the machines that occupied so much of his life's thinking and activities.

He loved to hunt, fish and ride horses. Mr. Best was the only holder of the Caterpillar 50-year pin.

Proof of Long Life... Customer Satisfaction

Look at the record! Of the thousands built, 9 out of 11 Euclids are still in use today. That's proof that "Eucs" have the rugged strength and staying power to give profitable performance year after year under a wide range of operating conditions.

You can profit by the experience of Euclid owners. Over 60% of all "Eucs" sold are repeat orders! Leading contractors and industrial users buy Euclids because they are designed and built for heavy off-the-highway hauling. They're job proved for high production at the lowest cost per ton or yard moved.

Rear-Dump Euclids of 10 to 34-ton capacities have loaded top speeds up to 35.7 m.p.h., with diesel engines of 125 to 400 h.p. Bottom-Dump "Eucs" range in capacity from 13 to 25 cu. yds., have diesel engines of 190 to 300 h.p. . . . top loaded speeds up to 34.4 m.p.h.

Write for information on the complete line of Euclid earth moving equipment or call your Euclid Distributor today.

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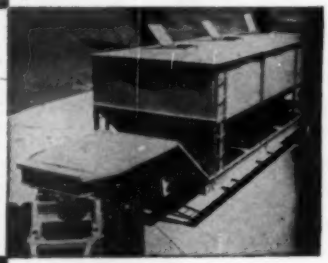
What's Your hauling problem?

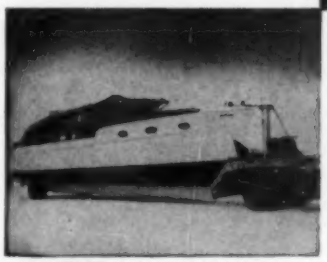
Motor Graders!

To speed hauling of motor graders within 50 to 100-mile radius, La Crosse developed this 19-ton tandem axle trailer, with special ramp for loading grader steering wheels on trailer gooseneck. Trailer idea cuts grader travel time 50% . . . saves wear on graders.

Bulk Materials!

This special La Crosse-engineered "bin trailer" eliminated high labor cost for bagging and unbagging corn starch . . . cut delivery time 90% from processing mill to finishing plant 2 miles away. Tapered La Crosse bin is equipped with worm gear unloader at bottom.





Boats, etc.!

Featuring low height and special "hull-tailored" saddles, this custom-built La Crosse trailer cut the cost of hauling a 13-ton Chris Craft over 50% per trip. It also simplifies loading and unloading . . . insures a safer ride without damage to structure or finish of boat.

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thermal conductivity of the air-gravel concretes compared favorably with the values obtained for the denser concretes.

The mean water absorption of the lightweight concretes upon soaking for 24 hours at room temperature was about 9% (by volume) for all mixes, compared with 11 to 15% for conventional concretes of similar materials and cement contents. The thermal conductivity of these concretes, as determined in the NBS guarded hot-plate test, was substantially lower than conventional concretes.

The air-gravel concretes developed at the National Bureau of Standards are considered experimental at the present time. The advantages in reduced density and thermal conductivity are appreciable but are gained only at a great sacrifice in strength.

Bids Wanted For Alaska Construction

Gil Pearson, Technical Information Officer, Anchorage, Alaska, recently stated that the Alaska District Corps of Engineers are seeking additional contractors to bid on 1952-53 projects of the big construction program in Alaska.

Pearson said, "Proposed construction plans for the 1952-53 season soon to be revealed in detail are sufficiently broad in scope to interest most types of contractors, here and throughout the States." He added, "Stateside contractors should understand that most construction problems, peculiar to

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Alaska because of climatic conditions, have been solved during the past four years of the current building program. Many facilities to contractors are available on the Alaskan Corps of Engineer projects. These and other details appear in the 1952-53 Prospectus of Construction, now being prepared for release."

The Technical Information Office of the Alaska District Engineer was activated last April for the purpose of bringing facts on Alaskan construction to the attention of contractors, engineers, and architects.

Requests for plans and specifications and bid forms should be forwarded to either the Seattle or Anchorage Office of the Alaska District Engineer.

Ohio Turnpike Selects Greiner Co.

The Ohio Turnpike Commission has employed the J. D. Greiner Co., consulting engineering firm of Baltimore, Md., to supervise construction of the projected $300 million toll turnpike across northern Ohio.

The contract with the Greiner firm calls for payment through the following fees (1) 1½% of total turnpike construction costs, and (2) 5% of the cost of moving public utility facilities excepting railroads. It is expected the cost fee will run to $450,000, while the utility moving fee is undetermined.

The commission also authorized State Highway Director T. J. Kauer to set up a commission staff. Kauer said the job should include a chief engineer, a legal staff and specialists in various types of construction. He added he would recommend the positions the commission needs, but not actual personnel to fill the jobs.

Utica College Offers Construction Curriculum

Utica College of Syracuse University has designed a program intended to work interested students into the actual building phase of the contracting and building industry. The plan is to combine practical experience with engineering theory.

It has the backing and approval of architects, builders, and contractors in the New York State area, and some of the local contractors helped design the course. Frank C. Delle Cese, a graduate of Cornell University and Treasurer of the Central New York Institute of Architects, will supervise the program and teach the technical courses.

Major portions of the program include descriptive geometry, analysis of architectural drawings, mechanics for contractors, materials and assembly, the business of contracting, the history and appreciation of architecture, and a wide array of general courses to support the liberal side of the program.

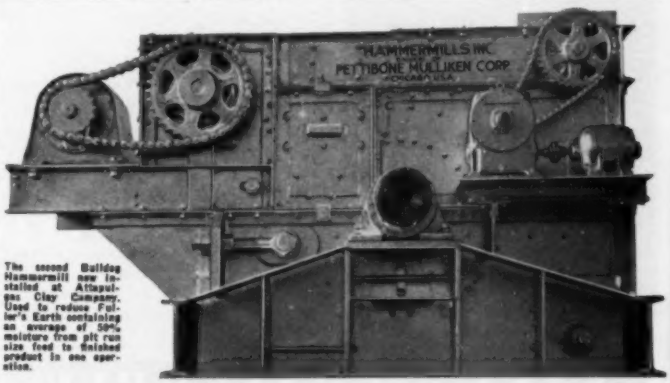
After a student completes the two-year associate degree requirements, he may continue his studies, either in day or evening classes, and obtain the baccalaureate degree with two years advanced credit.

The four-year program requires practical training during the junior and senior year, either by full-time employment during the summer, or part-time work during the school year. Both the course instructors and its backers help the student to find such employment.

Construction Proceeding At 16 Illinois Airports

In a report on the progress of Illinois airport construction projects, it was recently announced that construction work costing $1,535,189 would be completed at 16 downstate airports before winter.

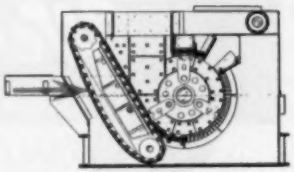
More than half of the money appropriated in the 1949-51 biennium was allocated for the work. The remaining



The second Bulldog Hammermill now installed at Attapulgus Clay Company. Used to reduce Fuller's Earth containing an average of 50% moisture from pit run size feed to finished product in one operation.

Bulldog Hammermill

with Moving Breaker Plate



For wet, sticky material reduction . . . for those tough, heavy-duty crushing jobs.

Illustrated above is the last word in Moving Breaker Plate Hammermill design. It is built by an engineering organization whose experience far surpasses any organization that might furnish Moving Breaker Plate crushing equipment.

Design Improvements have increased reduction efficiencies and lowered H.P. requirements. You can see this equipment in operation at any time. Also Hammermills will gladly survey your reduction requirements and recommend the proper equipment without cost or obligation. Just write or call.

Bulldog Hammermills are built in capacities up to 1000 tons per hour for every purpose: for primary, secondary, fine reduction of materials such as limestone, shale, Fuller's Earth, phosphate muck, phosphate mud balls, iron ore, oyster or clam shells, any reducible material.

HAMMERMILLS, INC., Division of **PETTIBONE MULLIKEN CORP.**
4800 W. Division St. Chicago 51, Illinois Phone SPaulding 2-9300

$1,700,000 was allocated for construction work at O'Hare field in Chicago.

A total of $1,901,500 was appropriated for the 1951-53 biennium, of which $731,000 is being allocated to downstate airports. State funds, supplemented by federal and local airport matching funds, brought the total spent on airport construction in Illinois this year to $3 million.

Simple Tool Shows Dual Tire Wear

Keeping truck tire wear at a minimum should be a constant goal in every job operation. One of the most prevalent wastes of tires on dual-wheel trucks is when the dual tires become unmatched and one tire must carry more than its share of the load.

Matching can be done very easily with this handy tool anyone can make from scrap material. Each time a check-up is made on tires or on the truck dual-wheels can be checked to make sure they are matching with this simple tool.

It consists of two strips of 2x2 inch board made to form an L shape with a metal crossbrace at the joining part. One side is held flat against the outer tire side while the other side rests atop the tires. In this position one can see immediately if one of the dual tires is worn well below that of the other and tire changes can be made so as to put matched tires on all such dual wheels.

Technician on Point Four Mission to Ecuador

W. H. Farmer, for six years an agriculturist for the Bureau of Reclamation on the Yakima project in Washington State, has left for Ecuador on a Point Four mission involving the preliminary investigation of the water resources of the Santa Elena peninsula.

The Ecuadorean Ministry of Public Works will be assisted in determining the potentialities and need for developing the water resources for irrigation in an area which is critically dry for approximately seven months, from May to December. High crests of the Andes, 20,000 feet and more above sea level, block the passage of moisture in the prevailing easterly winds.

Mr. Farmer's headquarters will be at Guayaquil, a city of 260,000 population on the eastern edge of the peninsula. Principal crops in the area are cocoa beans, rice and cotton.

Under the Point Four program, the Bureau of Reclamation is reimbursed by the Department of State for all funds used. Technicians are allocated to foreign assignments only to a degree which will not interfere with the domestic reclamation program.

J. P. Roberts

John P. Roberts, aged 43, assistant general manager of Timken Roller Bearing Co., service sales division, was killed in an automobile accident near Spruce Pine, N. C., September 19, while calling on accounts in the Atlanta territory.

Roberts, who started with Timken in September 1935, began his career in the Pittsburgh warehouse of the Timken Roller Bearing Co. and progressed through the organization to salesman in the Pittsburgh district, branch manager in the Minneapolis territory, and in 1945 was named assistant general manager of the service sales division.

He was a member of the Calvary Presbyterian Church and lived at Lake Cable. He is survived by his wife, Lois, and 5-year old daughter, Linda.

Legislative Acts to Aid Airports

New legislation to aid and facilitate the construction and maintenance of airports was enacted in a number of states this year.

Minnesota's legislature enacted a bill appropriating $200,000 for airport aids, with $150,000 available for low-cost, state-owned landing strips. To finance the program the state aviation gasoline tax was increased from four to five cents per gallon, but volume users were exempted from the boost. The Minnesota solons also reappropriated the unexpended portion of the $650,000 allotted for airports in 1949.

The Michigan legislature appropri-

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An improved connecting link that combines safety and simplicity. Its strength exceeds the published strength of comparable alloy chain.

WEDGLOK links can be assembled rapidly on the job—no special equipment required; particularly useful for dragline buckets, slings and other equipment with chain or wire rope attached.

Regular and pear shape. Sizes ⅜" to 3"

Available at your local distributors

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Need to Move Dirt in a Hurry?

Do it FASTER-CHEAPER with the BIG RED TEAM

Look for greater output and more profits to you with the fast-moving, quick-loading Big Red Team. Shown above, one of these 22-yard combinations helps to move and place approximately 170,000 cubic yards of dirt during the construction of a large earth dam near St. Louis, Missouri.

The Big Red Team of Bucyrus-Erie B-type scraper and International TD-24 tractor loads dirt quickly and easily. The blade penetrates stubborn material in a hurry. Dirt fountains into the bowl with Bucyrus-Erie loading action that breaks up large chunks, spreads dirt evenly in bowl and apron without load-wasting voids. Dumping is clean and fast: complete positive ejection of the load in seconds makes for speedy cycles.

Your International Industrial Tractor distributor can tell you about detailed job reports on the B-250 22 cu. yd. and B-170A 16 cu. yd. scrapers. See him now for all the facts on this fast, high output dirt-moving combination.

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SOUTH MILWAUKEE, WISCONSIN

ated $585,000 to be used in matching federal and local funds for airport construction and improvements. The bill was trimmed from an original proposal of $965,000. It was noted that $130,000 of the previous similar appropriation remained unspent.

Appropriations of $191,500 approved by the 1951 Maine legislature for airport construction would meet all cash-backed municipal requests for airport improvement work. The money was appropriated from general revenues.

A bill enacted in Indiana authorizes counties, cities and towns to issue revenue bonds to finance airport construction and improvements.

Rhode Island's legislature enacted a bill authorizing Newport to issue $250,000 in bonds for a municipal airport, subject to referendum at the next special or general election.

A new Ohio law authorizes county commissioners to issue revenue bonds for the acquisition of land and the construction and operation of airports.

Idaho's legislature enacted a bill authorizing cities to acquire lands by condemnation for construction and maintenance of airports and other aviation facilities.

The Texas legislature adopted a bill to permit zoning around military airports. The measure was said to be needed to increase the safety of pilots.

The Washington state legislature provided that counties may lease property to be devoted to airport purposes.

Enacted in West Virginia was a bill to allow cities and counties to regulate traffic and establish paid parking facilities within a quarter of a mile of an airport.

A new Wisconsin law requires that no structure or natural growth within three miles of an airport be more than 150 feet in height. The measure does not apply to railroads.

George R. Watson

George R. Watson, a consulting engineer of Bucyrus-Erie Co., died suddenly at his home in Waukegan, Ill., on October 1, of a heart attack. He was 67.

Born May 7, 1884, in Saranac Lake, N. Y., Mr. Watson lived there 20 years. He spent three years as an engineer in South America, and then went to Waterloo, Iowa, in 1908, where he joined the Armstrong Manufacturing Co. Prior to his association with that firm, he was with Fairbanks, Morse & Co. for a short time.

As chief engineer of the Armstrong Co., Mr. Watson was responsible for the basic design and development of all Armstrong drilling machines and tools. He became a recognized authority on the latest drilling procedures and methods to be employed in the blast hole drilling field. He was one of the first exponents of the use—whenever formations permitted — of the technique of drilling large diameter holes, spaced farther apart, in blast hole drilling operations.

Among his major accomplishments in the line of drill design were the perfecting of the Armstrong wire line derrick in 1916 —the first successful appliance devised to permit the use of wire cable in place of manila rope; the development of the first all-steel churn drill in 1922; the invention of the first successful rubber shock absorber which was used under the crown sheave on Armstrong drills to give increased elasticity to the drilling action when wire rope was used; and the development of rubber-insulated sheaves to decrease shock and vibration. He also designed and perfected the Armstrong bit dresser—a power operated machine for sharpening drill bits. During the past 30 years he was awarded numerous patents on well drilling machinery.

In 1925, Mr. Watson was named president of the Armstrong firm, and he continued in that capacity until 1933 when Bucyrus-Erie Co. acquired the Armstrong drill business. He then became associated with Bucyrus-Erie as chief engineer of the company's line of drills and tools and also in a sales capacity. He went

into retirement in 1944, but continued to be semi-active, serving in an advisory capacity on special assignments affecting Bucyrus-Erie drills and tools, and his inventive mind continued to turn out patentable drill improvements almost up to the day of his untimely death.

Survivors include his widow, Laura, of Waukegan; a daughter, Mrs. Phyllis Gronen of Waterloo; two sons, George M., a U. S. Embassy official in Athens, Greece, and James E., assistant director of power utilization, Tennessee Valley Authority, in Chattanooga, Tenn., and eight grandchildren.

First Plastic Pipe Water Line Laid

Pax, W. Va., is said to be the first city in the United States to have plastic municipal water pipes. The C. I. Thornburg Co., Inc., Huntington, W. Va., is supplying 25,000 feet of pipe for this $130,000 water improvement project.

Pax is a small coal mining community, located about sixty miles southeast of Charleston, W. Va.

The new type of pipe was specified since an extremely flexible and corrosion-proof pipe is needed for the rugged terrain and sulphurous soil.

Establish Rice Memorial Library

Establishment of the "George S. Rice Memorial Mining Library" at the Bureau of Mines' Anthracite Research Laboratory, Schuylkill Haven, Pa., was recently announced.

The library will contain many hundreds of technical books and reference material collected by the late Dr. George S. Rice, first chief mining engineer of the bureau, who died in 1950. It will be used by Bureau employees and also will be available to members of the mining industry, research students, and others.

Presented the bureau by Dr. Rice's widow, who now resides at Alexandria,

TRU-LAY
Preformed
WIRE ROPE

Available through Distributors All Around America

TRU-LAY *Performs Better—Handles Easier Reduces Accidents—Lasts Longer*

IT'S MADE "Intentionally Better"

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In Business for Your Safety

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on difficult work
YARDAGE GOES UP...
costs go down
when you use
SAUERMAN MACHINES

Picture shows a Sauerman Scraper digging into a hill of volcanic ash 250 ft. high and loading the material into cars. Work was started by power shovels but scraper was installed because its long reach insures complete safety and ultimately larger capacity. Scraper also has proved more economical.

Many material handling jobs can be accomplished safely and economically only by using a long range machine which permits the operator to remain outside the actual working area. Such machines are the drag scrapers and cableways which have been Sauerman specialties for almost half-a-century. Four major types of these machines are described below.

Drag Scraper Excavator — For speedy pit and hill excavation, rehandling industrial wastes, cleaning out ponds and general earthmoving. Combines long reach with large handling capacity to give low cost per cubic yard of materials handled.

Drag Scraper Stockpiler — Storing and reclaiming is an easy, one-man job with a Sauerman Drag Scraper — indoors or in the open. Handles all kinds of bulk materials. In stockpiling coal, the scraper builds a compact pile safe from spontaneous combustion.

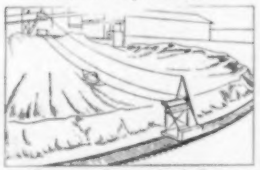
Slackline Cableway Excavator — Reaches far across pit, water or sludge; quickly digs deep, conveys and elevates to high dumping point. Bucket returns by gravity to digging point.

Tautline Cableway — This is a long range aerial crane designed for all jobs of lifting, conveying and placing loads of unwieldy materials. It is standard equipment for engineering contractors who use it to span the site of a dam, concrete bridge or a similar project and to handle all the materials of construction.

Other Sauerman Machines — Sauerman also builds Scraper-Loaders, Power Rakes, Tower Excavators, Durolite Wire Rope Blocks.

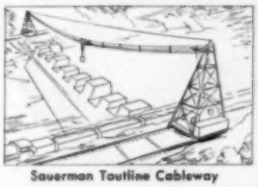
Write today for illustrated catalogs. Specify the types of equipment in which you are most interested.

Sauerman Scraper Excavator



Sauerman Scraper Stockpiler

Sauerman Slackline Excavator



Sauerman Tautline Cableway

Rope Haulage Equipment Specialists Since 1909

SAUERMAN BROS., Inc.

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Va., the collection will be housed in a special alcove in the existing library of the Bureau's station at Schuylkill Haven. John S. Buch, chief of the anthracite subregion of the bureau, said a painting of Dr. Rice, prepared by Dr. Rice's daughter Mrs. Katherine Mollison of Wellesly Hills, Mass., will be hung in the alcove.

It was Dr. Rice who led the bureau's research program which resulted in definite recommendations on how explosions, fires, and other accidents in coal mines can be prevented. He also was an outstanding authority on ventilation, prevention of subsidence, and improved mining techniques in the anthracite fields of Pennsylvania.

Throughout his long career with the Bureau of Mines, Dr. Rice continued his quest for authoritative writings in the field of mining, with emphasis on those for improving safety and efficiency.

Submersible Pumps Dewater Excavation

While laying a sewer line through a large swampy area on the Stamford, Conn., housing project, Peter Mitchell, Greenwich general contractor, was faced with a tough drainage job. Two submersible Kenco pumps requiring only 110 volt power were put on the job.

The pumps utilized are compact and weigh only 50 lbs. Submerged right into the ditch, they have an exclusive switch construction and the motors are hermetically sealed and run in oil. A small sump was dug at the lowest point of the ditch and partially filled with slag. A basket was made for the pump with 2x12-in. planks and a heavy circular screen to eliminate large rocks and foreign matter, and to prevent the switch from sinking into the muck.

● Workmen lowering the pump into the basket.

The ⅓ hp motor-driven pumps operated almost continually 24 hours a day for 25 days until the job was completed. Each had a capacity of 3,300 gph at a 10-ft. head. Fully automatic,

G. E. Rogers

Guy E. Rogers, manager of standard building sales for the Blaw-Knox Division of Blaw-Knox Co., died suddenly of a heart attack at Dundalk, Md.

Mr. Rogers was with the company for the past 30 years. He was a graduate of the Maryland Institute of Baltimore, and had taken post-graduate work in structural design at Johns Hopkins University and at Carnegie Institute of Technology. He was known nationally in the field of steel building and participated in the design and supply of many of the important standard steel building installations throughout the country.

• Included at a recent exhibition of European and American construction machinery at Bern, Switzerland, is the display, of Ulrich Rohrer-Marti Co. They are Swiss distributors for International Harvester, Bucyrus-Erie, Schramm, & Hough.

the pumps would operate all night after hard rains, enabling workmen to continue laying the piping on the following morning in a dry trench. On the Stamford job, bulldozers and draglines accidently buried the pumps and it was not until 36 hours later that they were discovered and dug out. Even though the impellers were jammed and the motors were running continuously in a stalled position, drawing six times the normal amperage, the pumps were restored to good running order as soon as the impellers were freed of silt.

Propose Florida Toll Road

Chairman Alfred A. McKethan of the Florida State Road Department has expressed belief that construction of a 350-mile toll superhighway spanning Florida from Jacksonville to Miami would be "entirely feasible."

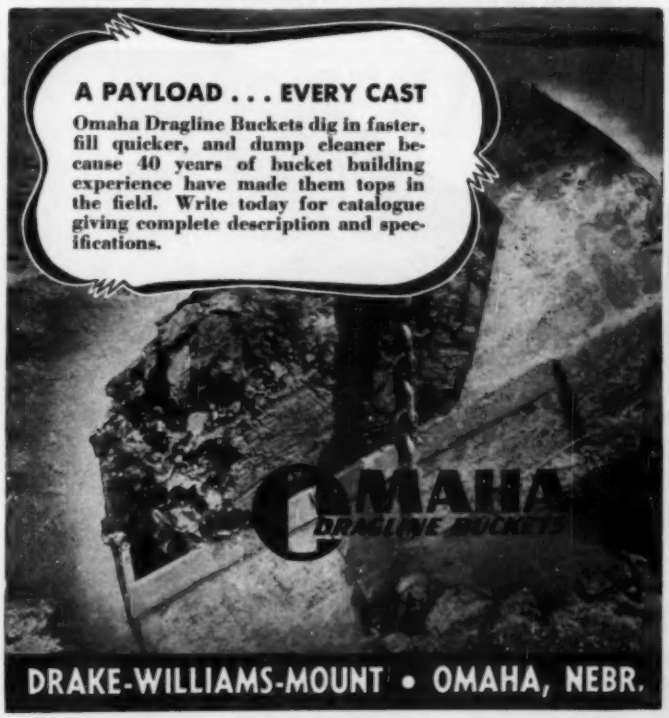
Predicting that construction of such a turnpike could begin within two years provided "the tremendous engineering and right-of-way problems can be overcome and financing can be arranged," McKethan said he would propose to the State Improvement Commission, the state's financing agency, that it join with the State Road Department in opening a preliminary survey of the project.

Rio Grande Contracts Approved

Contracts were recently awarded for channelization of a 21-mile stretch of the Rio Grande above Elephant Butte Reservoir near Socorro, N. M., and execution of an agreement by water users in the middle Rio Grande Conservancy District to repay the Federal Government for the repair and extension of the irrigation and drainage system.

The double-barreled program of the Bureau of Reclamation for improved water service in the middle Rio Grande valley is the first step in an effort to ease the economic threat of recurring water shortages in the region. It is said that it will ultimately provide irrigation water for an additional 5,200 acres of land in the district.

Under the construction contract, awarded to McGinnes Brothers Inc., of Houston, Texas, on a bid of $940,115 the work of channelization of the Rio


A PAYLOAD . . . EVERY CAST
Omaha Dragline Buckets dig in faster, fill quicker, and dump cleaner because 40 years of bucket building experience have made them tops in the field. Write today for catalogue giving complete description and specifications.
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Grande from San Marcial, N. M., to the narrows of Elephant Butte, will be begun within 30 days after notice to proceed is issued and is to be completed within 465 days from receipt of the notice. Engineering specifications in the contract call for the clearing of a floodway, the excavation of approximately 21 miles of the channel, construction of a levee and dikes, the installation of a 6-foot diameter corrugated metal pipe culvert and other structures.

Invitations for bids to construct an additional 17 miles of channelization upstream from San Marcial are expected to be issued by the Bureau of Reclamation within a short time.

Reservoir Forms Behind HH Dam

Montana's newest lake, the man-made Hungry Horse reservoir, began forming behind the huge multiple-purpose Bureau of Reclamation Dam on Sept. 21, when steel stop logs were dropped into place in the mouth of the 36-foot diameter diversion tunnel to block the flow of the Flathead River's South Fork.

Closure of the diversion tunnel started water backing up into the 34-mile long reservoir which will ultimately be one of Montana's largest lakes. When the Hungry Horse reservoir is filled it will store 3½ million acre-feet of water, or about 7,500 gallons for every man, woman and child in the United States.

Closure of the 1,180-foot-long tunnel, which was executed with only a handful of construction workers present, marked an important milestone in construction on Hungry Horse Dam. As the last stop log dropped into place, an important headwater tributary of the Columbia River, America's greatest power stream, was broken to harness, and Hungry Horse Dam began storing the energy of the South Fork of the Flathead River for use in Montana and the Pacific northwest.

Within the next month, the reservoir will rise about 130 feet, and the river will then begin flowing through the 8-foot diameter river outlet pipes, three of which are embedded in the dam. When the Hungry Horse project is completed, these outlet pipes will be used, when necessary, to lower the reservoir quickly to provide flood storage space.

Bureau of Reclamation engineers plan to capture one-million acre-feet of water behind the dam during the 1952 spring run-off. By holding this water back, Hungry Horse Dam will begin its service as a flood-control project, helping to reduce flood peaks in Montana's rich Flathead Valley, and as far downstream on the Columbia River as Portland, Ore.

• This picture of Montana's newest lake shows the towering blocks of Hungry Horse Dam mirrored in the rising reservoir. One million acre-feet of water will be captured behind the huge multiple-purpose Bureau of Reclamation Dam during the 1952 spring run-off. By next June the Hungry Horse reservoir will be up to the present level of the highest blocks in the dam.

Road Shoulder Seeded to Prevent Washouts

Oklahoma City Contractor Haskell Lemon has completed sowing approximately 50,000 square yards of bermuda grass along 11½ miles of shoulders on U. S. Highway 69 in Atoka and Bryan counties to prevent paving washouts.

This, the biggest project of its kind ever attempted by the state highway commission, cost $63,211.

Lemon bought a nearby 10-acre farm tract to get topsoil that was spread on a 6-in. thick bed after the shoulders were bladed.

Harbord Heads British Mining Group

The Council of the Institution of Mining and Metallurgy, London, England, have announced the election of Vernon Harbord, A.R.S.M., as president for the session 1952-53. He will take office at the annual general meeting to be held on May 15, 1952.

Harbord is a Fellow of the Royal Institute of Chemistry and the Institution of Metallurgists, and a member of the Iron and Steel Institute and the Institute of Metals. He has served on the council of the institution since 1940, holding the office of vice president for the period 1947-50. During the last 18 months of the war he served as metallurgical adviser to the Armament Research Dept.

Select Site for Road Surface Tests

Approval of a southwestern Idaho site for the construction of a $300,000 road test section for experimental work in highway surfacing to determine structural ability of bituminous surface to stand up under certain truck axle loadings, was announced in Boise. This action followed a meeting of the standards committee of the Western Association of Highway Officials.

Idaho State Highway Engineer E. V. Miller, who heads the committee, said the test section will be built 10 miles south of Malad on U. S. Highway 191. Construction will start this fall, with tests expected to be completed by the fall of 1952.

Cost of the project will be shared

by 12 western states, the U. S. Bureau of Public Roads, the National Academy of Science and the oil and trucking industries.

Tests over the road, which will be between one and one-half and two miles in length, will be conducted by the Highway Research Board of the National Academy of Science. Similar tests were conducted by eastern states in Maryland.

Other members of the WAHO standards committee include: W. C. Williams, assistant highway engineer of Oregon; R. H. Kenyon, Washington state engineer of highway plans and contracts; W. L. Anderson, assistant highway engineer of Utah, and G. R. Egan, highway design engineer of Nevada. The committee met at the request of W. A. Bugge, director of Washington state highways and president of WAHO.

Mount Vernon Cont. Corp. Selects Col. Ketchum

Col. E. P. Ketchum, Corps of Engineers, U. S. Army, has recently been elected vice president of the Mount Vernon Contracting Corp., Mount Vernon, N. Y. Ketchum left the military July 31, 1951 after 34 years of active service. His last assignment was as district engineer of New York, N. Y.

same men, same tools do
4 days' work in 3

35% more footage with 3 heavy rock drills

because, with 365 instead of 315 ft. of air, you hold full pressure instead of 70 lbs. in the tools.

75 ft.
125 ft.
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250 ft.
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JAEGER "Air-Plus" COMPRESSORS
deliver 15% to 25% more 100 lb. air at lowest cost per cubic foot of any compressors on the market, to run tools at their full efficiency.

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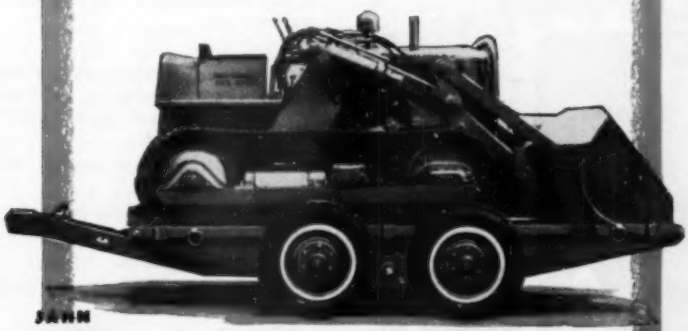
PUMPS • MIXERS • TRUCK MIXERS • PAVING SPREADERS and FINISHERS

F.O.B. NEXT JOB



Just tilt the trailer bed, load, and you're on your way to the next profitable job. With a Jahn Tilt Trailer, you can move your tractors, rollers, etc. *where* you want them, *when* you want to, and with the *safety* you demand. For moving five tons or a hundred, you can't beat Jahn Trailers.

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THERE'S A JAHN TRAILER FOR EVERY HAULING NEED

Tandem Axle Trailers

Tandem Axle Tilt Trailers

Single Axle Trailers

NOT in the *Contract*

A man who was fond of playing practical jokes, sent a friend a telegram collect which read: "I am perfectly well."

About a week later the joker received a heavy package with express charge collect. Opening it he found a big block of concrete on which was pasted the message: "This is the weight your telegram lifted from my mind."

A mountaineer on his first visit to the city was fascinated by the asphalt streets. Scraping his feet on the hard surface, he remarked to his son, "Well, I can't blame 'em for building a town here. The ground's too derned hard to plow, anyhow."

A Government inspector is a man who knows less about your business than you do, and gets paid more for telling it than you could possibly make out of it if you ran it right instead of the way he tells you.

Chief Engineer: "You say this man stole your money out of your stocking?"

Young Secretary: "Yes Sir, Chief."

Chief Engineer: "Why didn't you put up a defense?"

Young Secretary: "I didn't know he was after my money."

"I'm wearing my old undies and saving my new expensive ones."

"What for? A rainy day?"

"No, dearie, a windy day."

Landlord (to prospective tenant): "You know we keep it very quiet and orderly here. Do you have any children?"

"No."

"A piano, radio or phonograph?"

"No."

"Do you play any musical instruments? Do you have a dog, cat or parrot?"

"No, but my fountain pen scratches like hell sometimes."

"Ordinarily I would say it couldn't be done, but, Benson, you can get anything twisted around."

A case was being heard in court in which a farmer was claiming indemnity for a cow killed by a railway train. Counsel for the defense put many tedious and superfluous questions.

"Was the cow on the track?" he asked the engineer.

The engineer had had about enough. He replied: "No, of course not. She was in a field half a mile away. But when it saw her, the engine left the rails, jumped the fence, and chased her across the field and up a tree. There it strangled her to death."

Wife: "Tony, this isn't our baby. You've taken the wrong carriage."

Husband: "Shut up, you dope. This one's got rubber tires."

He: "I'm a bank examiner."

She: "Well, I'm no bank."

Sherlock Holmes and Doctor Watson descended from heaven for a short visit on this earth. As they walked along the city street, the great detective suddenly remarked: "Watson, it's indeed gratifying to know that the girls are still as pretty as they were in our day."

"But how can you say that?" asked the puzzled Watson. "We haven't passed any girls at all—pretty or otherwise."

"No, but there's one walking right behind us," said Holmes. "I can tell by the bulging eyes of the men walking toward us."

A young lady was on a sight-seeing tour of Detroit. Going out Jefferson Avenue, the driver of the bus called out places of interest.

"On the right," he announced, "we have the Dodge home."

"John Dodge?" the lady inquired.

"No, Horace Dodge."

Farther out Jefferson.

"On the right we have the Ford home."

"Henry Ford?" queried the lady.

"No, Edsel Ford."

Still farther out Jefferson.

"On the left, we have Christ Church."

A fellow passenger, hearing no question from the young lady, tapped her on the shoulder and said, "Go ahead, lady, you can't be wrong all the time."

"Let the shovel go . . . but hang on to that DIPPER"

When the preference for an Amsco Dipper is so strong that a superintendent at one of Minnesota's largest iron mines quietly removes it from a shovel being shipped to another mine, there are apt to be some good performance reasons why!

The superintendent reported that this AMSCO 6½ yard renewable lip dipper *loaded a record number of tons per 8 hour shift*—more than had ever been loaded before. And, where other dippers needed repairs every 2 months or so, it is still going strong after 6 months of service with no repairs of any kind!

Better design and construction are the reasons for this high production and longer, uninterrupted service. The wide mouth and shallow depth permit faster, easier digging and loading, and a 4-way taper insures clean dumping every time.

And, this dipper is *all-cast*—of tough, work-hardening AMSCO Manganese Steel. The renewable lip and heel plate, when finally worn, are replaceable in a matter of minutes.

Dippers can—and should be—bought with an eye to higher digging efficiency and lower costs per ton . . . and the moral of this actual on-the-job example is clear . . .

WHEREVER YOU MEET A PROBLEM OF WEAR CAUSED BY IMPACT AND/OR ABRASION . . .

. . . find out about longer-lasting, dollar-saving Manganese Steel Dippers made by AMSCO . . . world's largest producer of manganese steel castings for all industry.

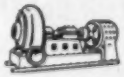
AMSCO controls impact and abrasive wear in 5 basic industrial operations:

Power Transmission

Mining and Excavating

Transportation

Crushing and Pulverizing



Materials Handling

Brake Shoe **AMERICAN MANGANESE STEEL DIVISION**

373 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.
Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

Equipment You Ought to Know About

Irrigation Canal Liner

Manufacturer: Owens-Corning Fiberglas Corp., Toledo 1, O.

Claims: A new product designed to control seepage and erosion in ditches and canals, is a Fiberglas-reinforced prefabricated asphaltic membrane lining. It is primarily intended for installation on bottoms and sides of most types of canals and lateral ditches but may also be used in stock and irrigation ponds and swimming pools.

• In this installation the liner is being laid longitudinally.

It is expected to be used widely in water conservation areas in the United States, principally in the western states, on large farms and in county drainage systems. Fiberglas canal liner can be applied at any time during the year and can be stored indefinitely. It can be installed with hand tools and unskilled labor. Two men can install it, and a crew of four to six men can apply from 200 to 300 square yards an hour under normal conditions.

In the first step in construction, the canal or ditch is over-excavated by dragline to a depth of one foot. If conditions are severe and greater cover depth is required, the depth may be two feet. Excavation to a sufficient depth is necessary to allow earth or gravel fill to be placed over the liner.

• The irrigation canal liner is installed and anchored to the ground with wire staples, after which staple holes are sealed.

This cover later helps resist damage by livestock and weather.

Side slopes are flattened to keep cover soil in place. Removed soil is piled on top of the canal bank so that it will be ready when needed as replacement for cover. The tops of the side walls are shaped to allow for an anchor for the liner. Because a smooth sur-

McCarthy Drills PAY OFF!

SELF-PROPELLED HORIZONTAL DRILL

FOR BLAST HOLE DRILLING

• Heavy all welded steel carriage and four individually adjustable leveling jacks make setups faster, drilling smoother. Fingertip hydraulic control permits instantaneous change of drilling feed. Bores 5 to 10-inch diameter blast holes to horizontal depths of 120 ft. or more.

Heavy-Rugged

✓ McCARTHY DRILLS PAY THEIR WAY
✓ MAKE MORE MONEY FOR YOU
✓ RECORDS SHOW 40% MORE HOLES
✓ LIST OF USERS ON REQUEST

• McCarthy Vertical Drills adapt to any job where ordinary rock formations are to be blasted.

Designed with compact retractable hydraulic tower for Truck, "Cat," Half-track or Jumbo mountings. Power shafts made of tough alloy steel. Simplified construction throughout.

Over-all height with tower reclining: 7 ft., 4 in. Wt.: 5,100 lbs. All McCarthy units can be operated with Gasoline, Diesel or Electric power units. Write for descriptive literature.

Powerful

VERTICAL DRILL

FIFTY YEARS DRILLING EXPERIENCE 1901-1951

SALEM THE SALEM TOOL COMPANY SALEM

● After installation a layer of gravel or earth is placed over the liner.

face is required for a tight, uniform installation, the subgrade then is dragged and lightly rolled.

Fiberglas canal liner, which is three feet wide and 36 feet long, may be installed longitudinally or transversely. If the canal is large enough, laying the liner longitudinally eliminates much cutting.

Rapid-setting cut back asphalt is used to seal joints of the strips which are overlapped by at least three inches. A sprinkling can with its head removed may be used to distribute the asphalt.

Wire staples, up to eight inches for soft ground, may be used to anchor the lining to the ground at intervals of two feet in the overlap. This operation prevents the liner from slipping before the backfill is in place.

Excavated soil is placed over the canal liner. If the canal is subject to erosion, a gravel blanket, four inches to a foot deep, may be placed over the soil.

Fiberglas canal liner is impervious to moisture and to soil acids. The liner is strong enough to resist tearing and puncturing and flexible enough to conform to the contour of the ground surface.

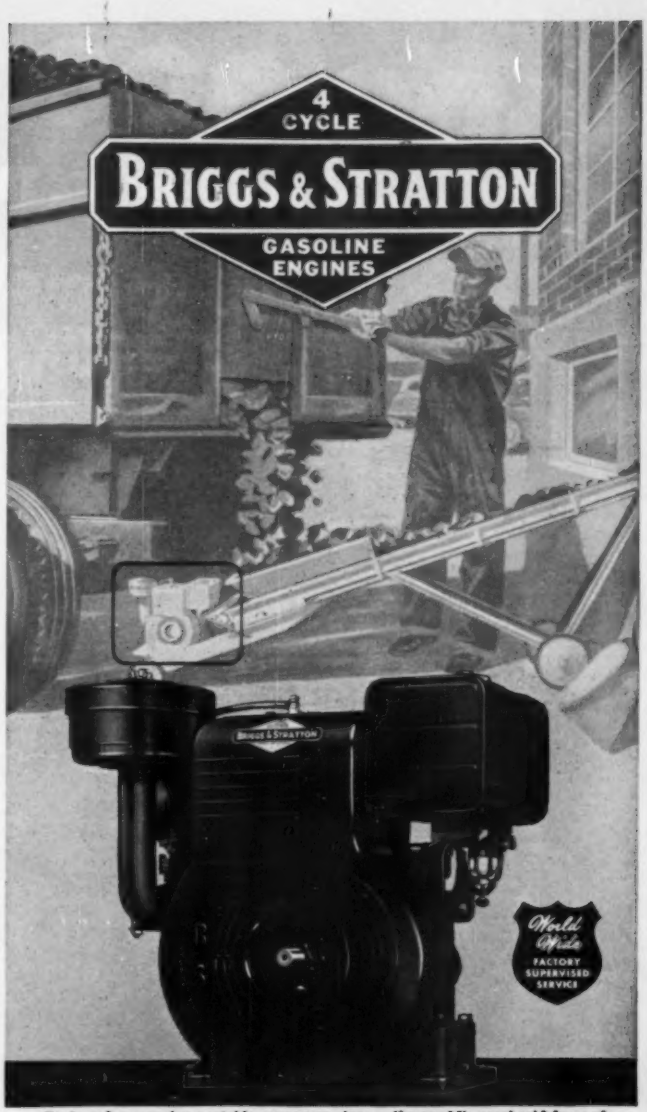
Water Filter

Manufacturer: Butler Engineering Co., Inc., New Orleans 13, La.

Claims: Model C-40 is designed for installation in trucks, buses and automobiles for the prevention of dangerous engine overheating.

Truck fleet operators can save motor oil, valves, pistons, rings and liners by installing the filter. The centrifugal water filter action of the filter removes particles of scale, dirt rust and sludge that clog the water channels in the heat exchanger, radiator and engine block. Action of the filter is automatic—no screens, pads or chemicals are used.

The filter has a two-fold action. The rectifier section removes and prevents the formation of mineral and rust scale and stops corrosion. The filter section collects the sludge in a glass collecting chamber where it is easily removed. The car or bus operator can see the sludge and dirt as it collects and therefore can remove it before any serious



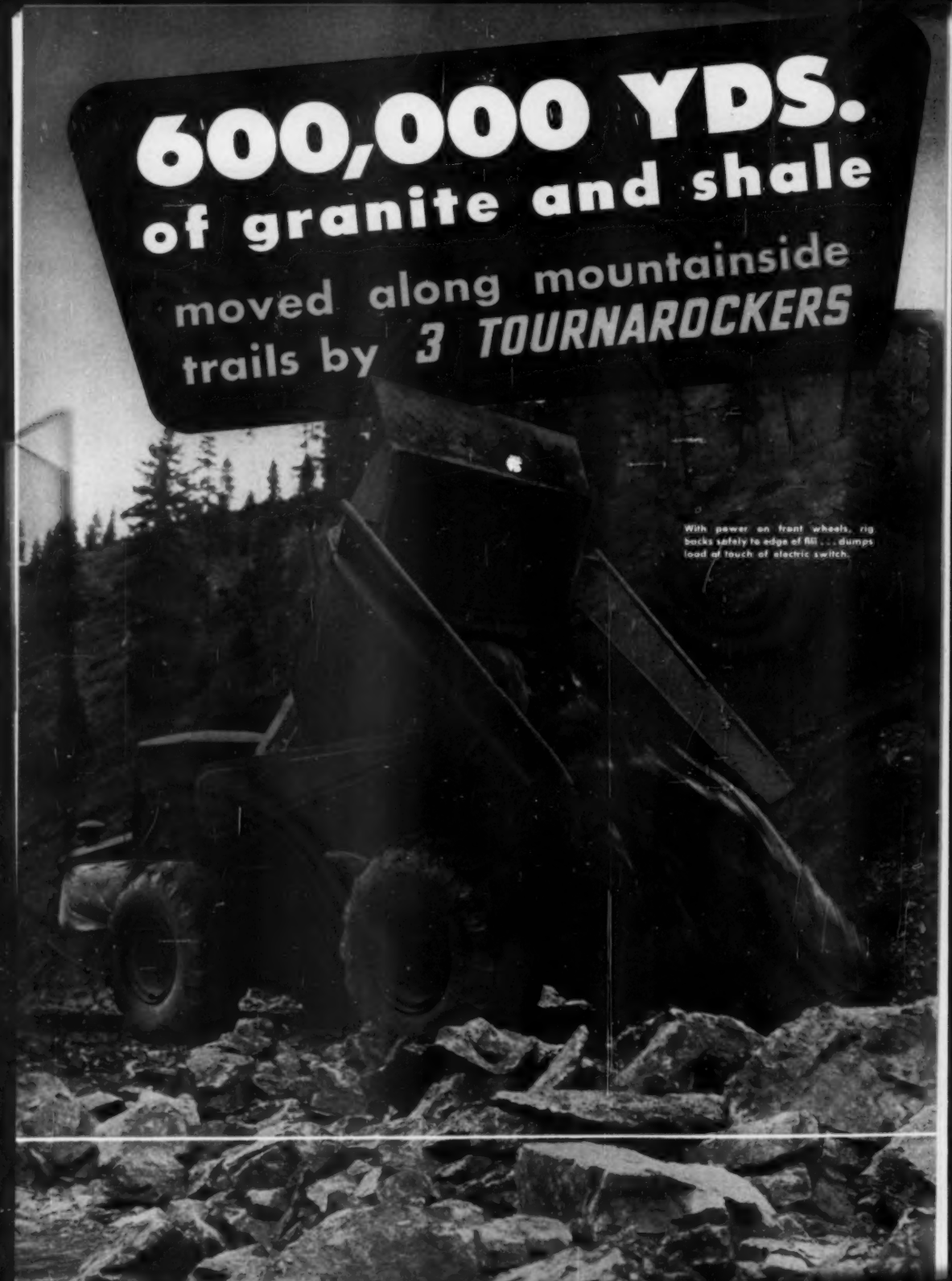
Preferred power for portable conveyors, too — the world's most widely used single-cylinder 4-cycle, air-cooled gasoline engines on machines and tools for industry, construction, railroads, and on appliances and equipment for farm and home.

THERE is a Briggs & Stratton engine service organization, factory trained and supervised, near you — with a stock of genuine Briggs & Stratton parts for all models. The Briggs & Stratton service organization network is the largest of its kind in the world. Briggs & Stratton Corporation, Milwaukee 1, Wis., U. S. A.

In the automotive field Briggs & Stratton is the recognized leader and world's largest producer of locks, keys and related equipment.

600,000 YDS. of granite and shale

moved along mountainside trails by 3 TOURNAROCKERS



With power on front wheels, rig backs safely to edge of fill . . . dumps load at touch of electric switch.

252 yds. hourly on 2400′ cycles is typical fleet production for *Roy L. Bair Co.*

To eliminate the treacherous "Camel's Hump" on U. S. 10 between St. Regis and Cabin City, Montana, Roy L. Bair Co., of Spokane, Wash., is using 3 rear-dump, 16-ton C Tournarockers to haul 600,000 of an estimated 1,200,000 cu. yds., under conditions that are really rugged.

Shovel-loaded in 2 min. 9 sec.

Material is mostly tough clay-seamed shale, with a large percentage of granite boulders and some gravel. Tournarockers are loaded in 5 to 6 passes by a 2½-yd. shovel in an average of 2.15 minutes. Despite high voids, loads average 10 to 11 pay yards each.

Tournarockers are constantly working in restricted mountainside cuts, hauling at 3900′ altitudes along steep canyon sidewall roads, and dumping over sheer banks. Always narrow and winding, the clay-surfaced trails are often made slippery by heavy rains.

Fleet output 25 loads hourly

Under these tough conditions, the 3 Tournarockers deliver an average of 25 heaped loads hourly on 2400′ cycles — a total of 252 pay yards an hour, or approximately 363 tons of the 2880-lb. material.

Get Tournarocker estimate

These production figures from the "Camel's Hump" job are typical of field evidence coming in daily, showing how C Tournarockers are providing dirt-movers all over the country with lowest cost per ton hauled. Your LeTourneau Distributor has more job-proved facts and figures on the *new* 18-ton "C" that will interest you. See him today!

Low entry from rear . . . plus big 12′ x 8′ top opening . . . speeds clean loading of big-chunk granite rock.

Carrying granite boulders, 16-ton, 186 h.p. C Tournarocker hauls approximately 1200′ one way to dump area. Three of these electric-control "C's", 2 rotorex Super C Tournarockers, 2 tractor-drawn W Carryalls and a LeTourneau Bucket are handling 90% of Bair's 1,200,000-yd. realignment job.

Tournarocker makes 90° turn within 14′ radius . . . moves quickly into loading position under 2½-yd. rock shovel. Including all turns and spotting time, total 2400′ cycle averaged 6.25 min. (2.15 min. to load, 1.05 min. to haul 3900′, 0.3 min. on dump, 1.35 min. to return home).

R. G. LeTOURNEAU, INC.

PEORIA, ILLINOIS

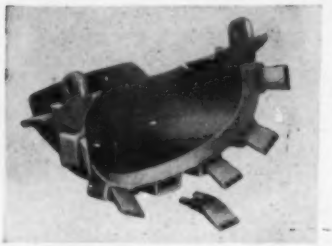
HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

damage is done to the radiator. Model C-40 may be used with or without antifreeze. The device is simple to install —within a matter of minutes—by anyone who operates a vehicle. This model is a centrifugal filter and water rectifier, rated at a gallonage capacity of from zero to 40 gallons.

Trenchliner Bucket Tooth

Manufacturer: Parsons Co., Newton, Iowa.

Claims: The development of Tap-In bucket teeth as standard equipment



on all Trenchliners has been announced. Principal feature of the newly designed, self-locking tooth is easy-in, easy-out.

Tap-In teeth eliminate the need for bolting or crimping edges to hold teeth in position. A precision fit taper locks the tooth firmly in place either on buckets or sidecutter bars. Sturdy tooth holders are integrally cast with the bucket lip for positive tooth support. By welding adapters to the buckets, Trenchliners of any age can be converted to use Tap-In teeth.

Surveying Instrument

Manufacturer: Argyle Manufacturing Co., Colchester, Ill.

Claims: Said to be accurate for leveling, grading and simple surveying, the new instrument incorporates the use of an ordinary carpenter's level fitted with small metal clips for sighting.

Operation of the product is claimed by the manufacturer to be very simple. It can be placed on any handy platform (pile of bricks, a wall, a mound of earth, a pair of cement blocks, etc.); a carpenter's level is then placed on top, and the stub adjusting legs turned so that the Trans-A-Level is perfectly level. Spring clips are then slipped on the carpenter's level and the user sights along them much the same as on a shot gun. The new product is said to be very compact and can be carried in a tool box. The stub adjusting legs are standard equipment; longer legs are also available.

Portable Signal Flasher

Manufacturer: Haledy Electronics Co., 57 William St., NYC 5, N. Y.

Claims: A lightweight, portable electronic signal flasher—without moving parts or filaments—assuring long battery life and long range visibility has been announced.

This new flasher of cold cathode

tube design emits a sharp brilliant flash of light clearly visible for approximately a mile.

Unaffected by vibration, humidity or temperature in a compact splash and rainproof aluminum case measuring 6x6½x10 inches, it weighs only 8½ pounds. It can be carried by handle for use wherever signaling is required.

The flasher utilizes a set of three standard 90 volt batteries in series, and all battery energy is directly used to generate the bright flashing signal.

An off/on switch as well as an outside knob to control the number of flashes per minute, is provided. A clear or colored precision Fresnel lens protects the cold cathode tube.

Concrete Mixer

Manufacturer: Chain Belt Co., Milwaukee 4, Wis.

Claims: Now in production is a new

Rex 6-S concrete mixer. It is built for fast production on jobs needing a 6-ft. mixer.

The water tank has been relocated to the top of the mixer to permit faster water entry and faster batching. It is now equipped with a "see-in" clear, unbreakable plastic check valve for elimination of guesswork in the water supply.

A new "one-arm" control for clutch and brake simplifies the operator's movements, and speeds production.

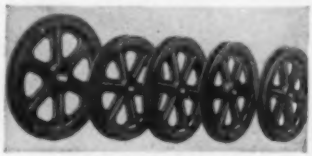
For greater durability and longer life, pillow blocks have replaced bushings on the counter shaft, and bearings are now used on the winding drum.

High Precision Transit

Manufacturer: The Breithaupt Co. represented by Columbia Technical Corp., 5 East 57th St., NYC 22, N. Y.

Claims: New precision transit, model No. 30, designed for high precision surveying needs.

The new model incorporates the standard features of Breithaupt surveying instruments such as totally en-



Everything in

SHEAVES

for wire rope

PROTECT YOUR WIRE ROPE with genuine American Hoist replacement sheaves. Same top quality used on all American Hoist cranes and other big name equipment. Complete stocks, all types and sizes. Prompt shipment from either St. Paul or So. Kearny plant.

American Hoist & Derrick Company

SAINT PAUL 1, MINNESOTA
SO. KEARNY, NEW JERSEY

closed and dust proof construction, compactness and reduced weight. The instrument weighs 11½ pounds. It has a reading accuracy on vertical and horizontal circles of one second. The telescope has a 40 mm aperture and 30 x magnification. The sensitivity of the instrument's three levels is 20 seconds per 2 mm.

Hoe Attachment

Manufacturer: Koehring Co., Milwaukee 16, Wis.

Claims: A newly designed hoe attachment for the manufacturer's 304 excavator will increase the machine's digging depth to 19 feet, 9 inches, according to a recent announcement. Other improvements made on the model 304 provide extra resistance to side sway and extra strength to meet any operating condition for below ground level excavating.

Officially rated as a ¾-yd. excavator, the 304's dipper arm is pivoted at the end of the boom and jacknives to dig a vertical backwall.

The counter shaft is in line with boom foot mounting which eliminates dipper drift when the boom is raised. Adjusting links on the dipper arm allow for three variable settings so that the dipper angle can be matched to the type of material and cut being made.

High-Tensile Electrode

Manufacturer: Eutectic Welding Alloys Corp., Flushing, N. Y.

Claims: A new electrode for cast iron welding is claimed by the manufacturer to be the first real improvement over conventional ferrous electrodes in the past decade.

It is reported that the carbon content in the deposited metal is evenly distributed in the new electrode.

The analysis of the metal deposited

Heavy Hauling Jobs

the POPULAR

ROGERS Type "T"

LARGE CAPACITY IN AN 8 FT. DECK WIDTH—LEGAL IN ALL STATES. 8 TIRES ON 2 ROCKING STUB AXLES WITH LEVEL OR DROP DECK IN 15, 20, 25, 30 and 35 TON CAPACITIES

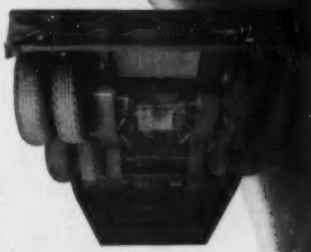
By reason of its versatile adaptability to all kinds of heavy hauling jobs, the Rogers Type "T" has steadily increased in popularity.

It's a "natural" for small and large contractors and haulers.

If you are considering the purchase of one or more trailers, by all means investigate the Type "T".

It packs powerful advantages in a multi-purpose single unit.

Write for full details and catalog.



A worms-eye view of the sturdy rear end and frame construction of the famous "T".

The rear end design of the Type "T" has proved so efficient it has been adopted as standard construction in Rogers Power-Lift Detachable Gooseneck Trailers.

EXPERIENCE builds 'em ROGERS PERFORMANCE sells 'em

ALBION, PENNA.

136 ORCHARD ST.

"RODGERS I BEAM OR GIRDER TRAILER"

BUCYRUS-ERIE
EXTRA VALUES MEAN

Dependable High Output

Big, dependable yardages are "standard equipment" for Bucyrus-Erie excavators, as owners and operators the world over will testify. The superior performance records of Bucyrus-Erie result from fast, smooth operating cycles and on-the-job reliability for peak output every shift . . . *plus* the extra values of soundly engineered design and durable construction available only to Bucyrus-Erie as a result of its unmatched experience in the construction of quality excavating machinery.

142L51C

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

by new EutecTrode 26 will show a uniform amount of carbon so that the deposited material is similar to a high tensile, high carbon steel, thereby increasing the tensile strength of the weld, it is reported.

Pack Radio Power Unit

Manufacturer: Motorola, Chicago 51, Ill.

Claims: New pack set power supply designed to increase the utility of the Motorola F.M. 2-way radiophone pack unit by making it convertible to semi-fixed or mobile application while pre-

serving the dry battery supply for portable operation only.

A plug-in power connection and switching facilities on the pack unit permit quick and easy transfer from internal dry battery power supply to an external power source.

The power supply makes it possible to operate the pack set from either a 117-volt AC or a 6-volt DC primary power supply.

The complete model includes a sturdy bracket to which the power supply is mounted by means of a quick release cowl fastener. All necessary cables and connectors are included as part of the model.

Anti-Rust Paint

Manufacturer: Monroe Co. Inc., 10703 Quebec Ave., Cleveland 6, O.

Claims: Rust-Cure, a new anti-rust paint can be applied over rust without wire-brushing, scraping or sandblasting.

Available in black, aluminum and clear, Rust-Cure is intended for both interior and exterior use on either old or new metal. Upon application, it is said to penetrate through any existent rust layer and effectively seal the surface against further rust action. This paint is compounded for brush application and may be thinned for spray use. The black and aluminum shades are for use solely as a finish coat while the clear paint can be applied over any desired color.

Three Tractor Improvements

Manufacturer: Caterpillar Tractor Co., Peoria 8, Ill.

Claims: Heavy-duty fenders are now standard equipment on the manufacturer's D8 track-type tractors. According to the manufacturer, these stronger fenders are made from one-half inch steel plate and will provide a more rigid platform for mounting equipment. They will withstand greater abuse and rough treatment sometimes encountered in pioneering and logging operations. The company anticipates that heavy-duty fenders will also become standard equipment for D7 and D6 tractors within the near future.

This manufacturer recently offered a complete muffler group for the new Diesel DW20 and DW21 tractors, similar to that offered for the smaller DW10. The new attachment will reduce engine exhaust noise, providing greater operator comfort and reducing annoyance for people living near job sites.

New controls for the "Cat" D4 tractor equipped with HT4 Traxcavator now match the higher seat. The revised design allows greater length without interference for gearshift, flywheel clutch, and steering clutch levers. Operator fatigue is reduced.

Hydraulic Tractor Bucket

Manufacturer: Earl H. Spence & Co., Inc., San Leandro, Calif.

Claims: A new hydraulic-operated

front-end bucket, designed expressly for the diminutive Agricat, crawler-type tractor, has been put on the market.

The Agricat is a midget-sized (six foot long) tractor for use in places that restrict the use of larger type tractors. The newly designed, four cu. ft. capacity bucket is capable of displacing

SAVINGS FLOW FROM SPEED-LAY PIPE SYSTEM

EVERYTHING for a COMPLETE PORTABLE PIPE SYSTEM

FACTORY PACKAGED • PIPE COUPLINGS • FITTINGS • VALVES ACCESSORIES • LIGHTWEIGHT, SAVES LABOR • FAST, SIMPLE

Immediate Installation

by one unskilled man. 2½ to 12½ o.d. black or galvanized. Larger sizes can be furnished. Ready to lay—without delay.

DELIVERED READY FOR INSTALLATION

SEND COUPON NOW!

ALBERT PIPE SUPPLY CO., INC.
Berry & N. 13th St. Brooklyn 11, N. Y.

Please send free booklet describing your Speed-Lay Pipe System and services:

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CITY.....STATE.....

earth or debris from four inches below track level to a maximum lift height of 34 inches. The bucket trip is hand-operated and has a spring return. Visibility is unimpaired, permitting the operator to see what he is doing during all phases of his work.

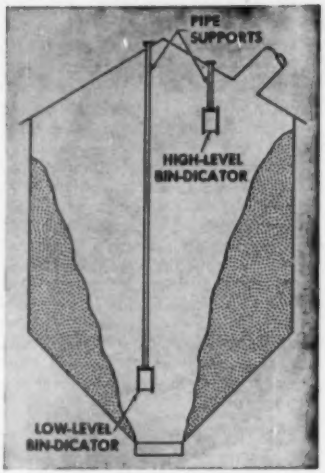
Bin-level Indicator

Manufacturer: Bin-Dicator Co., 13946-56 Kercheval, Detroit 15, Mich.

Claims: The new unit, known as model CS Bin-Dicator, is designed for suspended installation from above and can therefore be located anywhere in the bin where there will be a free flow of material to and away from the diaphragm. This flexibility as to location permits the successful application of this indicator in bins containing materials which tend to build up on the walls of the bin and to flow down through the central area only.

Under these and similar conditions, indicators mounted on the bin wall could not function properly but the new unit mounted in the area of moving material, gives dependable indication of high and low levels.

The unit is designed to be drilled and tapped to take away size pipe up to 2 inches. The support pipe also accommodates electrical wiring, making



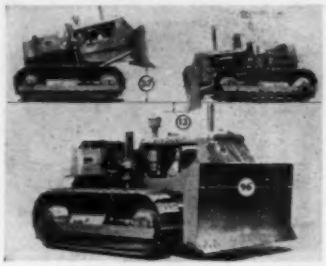
conduit unnecessary. Because of the manner of mounting, the installation can be easily moved up or down in the bin to operate at different levels or lifted out for inspection.

No-pushbeam Bulldozer

Manufacturer: Baker Manufacturing Co., Springfield, Ill.

Claims: A "no push-beam" bulldozer, the Baker 9-X, is announced for use on the Allis-Chalmers HD-9 crawler tractor. On the 9-X mounted tractor, the dozer frame and tractor frame are bolted together as an integral unit. Thus, the tractor frame itself becomes the push beam. The tractor-'dozer is raised and lowered as an integral unit by double-acting hydraulic cylinders connecting to the truck frame through a new lifting mechanism.

Shorter coupling gives the 9-X 17% sharper "in and out" incline for pit



and basement work. The 9-X is only 96 inches wide and lighter than a conventional blade by 1,150 pounds.

The blade has a maximum rise of 37 inches and a drop below ground of 13 inches. The angle of approach is steeper than might be expected from the 13-in. drop below ground due to the closer mounting of the blade to the tractor frame. The new mounting permits the blade to swing on a shorter radius than is possible with the conventional, outside mounting.

Carbide Tipped Drill Bit

Manufacturer: New England Carbide Tool Co., Inc., Cambridge 39, Mass.

Claims: Carbide tipped granite plug drill bit for plug and feather work recently set a new speed record of 13 seconds per hole (average) for wet drilling of ¾-in. holes, 3½-in. deep.

Variety of Equipment

Continued from page 27

125-hp General Electric motor, supplies 2,000 gallons of water per minute to the wash plant. An auxiliary pontoon, located part way up the bank of the river, supports the weight of the 8-in. pipe when the river rises.

An interesting feature is the economical handling of railroad cars at the stationary plant. The cars are positioned by locomotives on the downstream side of the plant, and are moved down a slight grade on a double track running under the plant by two 15-hp car spotters situated between the tracks about 200 feet upstream. Manager of

STURDILITE

The HEAVY-DUTY FLOOD LAMP THAT

Lights Your Work Better . . . Gives Longer Service at Lower Cost

Vibration-absorbing Base

Specially Designed for Efficient Service on

Shovels — Excavators — Drag-lines
Roadbuilding Equipment
Locomotive Cranes — Tractors

"BUILT to take it," say users of STURDILITE Heavy-Duty Flood Lamps, after years of trouble-free service. Hermetically sealed-beam lamp—no reflector to become tarnished. Complete assembly mounted on rubber cushioned base that absorbs vibration and shocks. Available in 6-8, 12-16, 24-28 and 110-120 voltages.

COMPLETE BULLETIN, specifications, and quantity prices sent promptly upon request.

Metal Spinning Division
PHOENIX PRODUCTS COMPANY
4723 N. 27TH STREET, MILWAUKEE 16, WISCONSIN

the JayRay plant is Lee Cassel, who is assisted by his son, Elbert.

About six miles downstream from JayRay is the Ramsay plant, supervised by Adolf Fiek, which not only supplies huge quantities of concrete aggregate, but is also the home of the firm's main repair shop. Under Head Mechanic Frank Fojtik, this large machine shop is complete with lathes and other precision machinery required to make new parts and effect the many major and minor repairs needed. McMillian said it was seldom necessary to send repair work outside their own organization.

The 200-acre operation at Ramsay is located about 1½ miles from the shop on level ground not far from the river. Here, a Page dragline excavates overburden and gravel with a 3-yd. Hendrix bucket on a 100-ft. boom, at the rate of 200 yards per hour.

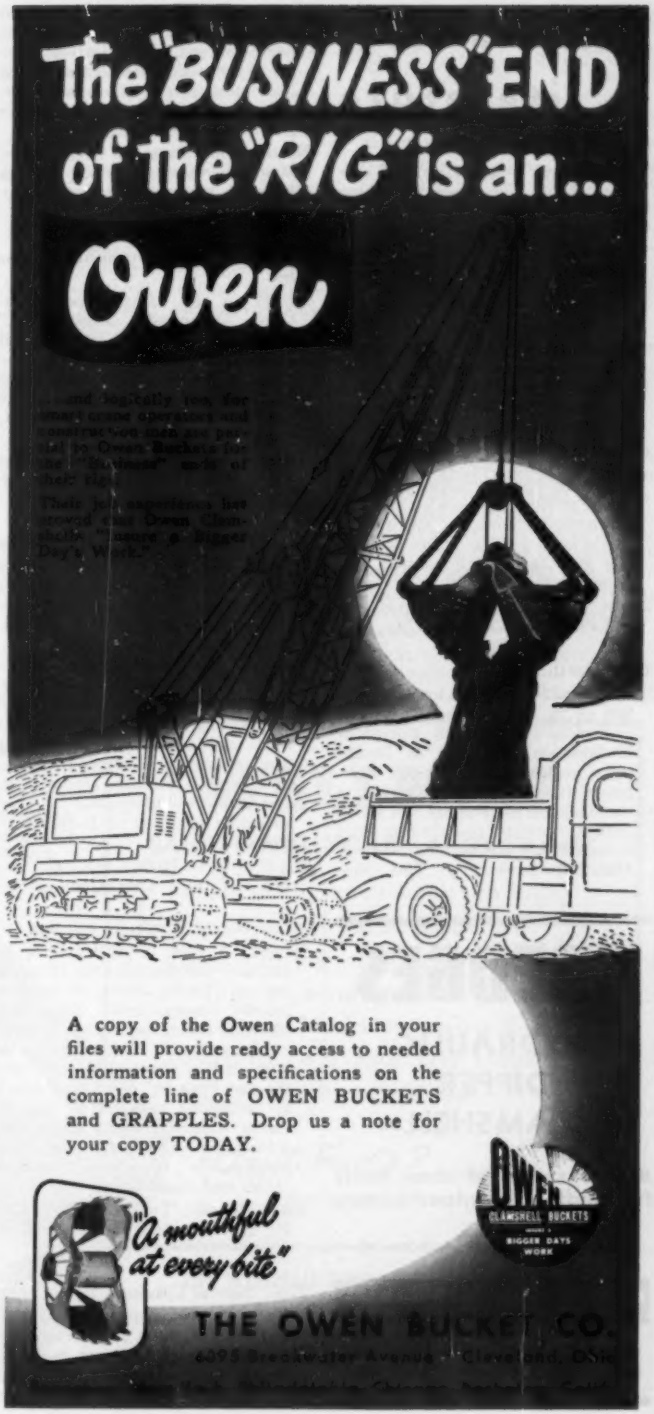
Powered by a 120-hp Page 2-cylinder engine, this machine works two 10-hour shifts stripping 10 feet of overburden at night, and loading from 18 feet of gravel and sand by day to a portable wash and screen plant similar to that at JayRay No. 1.

This plant produces concrete gravel from 1½ inches to 2½ inches, and concrete sand. Southern Pacific railroad cars carry the material over 2½ miles of company-owned tracks to the Southern Pacific main line. At the stockpile located near the juncture of company and Southern Pacific tracks, a Bucyrus-Erie 22-B, with ¾-yd. Owen bucket, loads and unloads cars. Now employing 25 men, this plant was opened for business in 1943.

Grease, oil and fuel products of all major oil companies are bought on a rotation basis for all Thorstenberg & Tamborello plants.

All exploration for new gravel deposits is handled by McMillian, who does not seem worried about the present supply running out.

"Now there's what I call a real embankment job, Jensen."


The "BUSINESS" END of the "RIG" is an...
Owen
A copy of the Owen Catalog in your files will provide ready access to needed information and specifications on the complete line of OWEN BUCKETS and GRAPPLES. Drop us a note for your copy TODAY.
"A mouthful at every bite"
OWEN
CLAMSHELL BUCKETS
BIGGER DAYS WORK
THE OWEN BUCKET CO.

New trade literature

Title: **Pile Renting Booklet**

Subject: A new 8-page illustrated brochure listing advantages of renting steel sheet piling and giving engineering details of interlocking sections has been prepared by the manufacturer, suppliers of steel sheet piling, pipe and railroad trackage, and is now available for distribution. The brochure, Bulletin F-160, "The Advantages of Renting Steel Sheet Piling," contains specifications for piling sections, as well as corners and connections, of the three leading manufacturers of steel sheet piling. Data is given on pile hammers and extractors available. In addition to explaining the operation of piling rental service, the booklet contains photographs showing piling in use on six large projects where contractors were faced with unusual construction obstacles.

Where to get: L. B. Foster Co, 231 S. LaSalle St., Chicago 4, Ill.

Title: **Earth Manual**

Subject: Publication of a tentative edition of an Earth Manual has been announced by the U. S. Bureau of Reclamation's Division of Design and Construction in Denver, Colo. Issued as a Specialist Supplement to the Reclamation Manual, the Earth Manual combines pertinent material from the previously issued Earth Materials Laboratory Test Procedure Manual, the Field Manual for Rolled Earth Dams, and the Earth Materials Investigation Manual. Information has been added on foundation investigations and control of earth materials in canals and miscellaneous earthwork.

Where to get: Bureau of Reclamation, Supply Services Div., 841, Denver Federal Center, Denver, Colo. ($2.50)

Title: **Research Operations Booklet**

Subject: A new 12-page booklet entitled "Organized Curiosity, Inc." It's a picture story of International Harvester's 290-man research team checking the company's products for quality from design to delivery in the manufacturing research department in Chicago.

Where to get: International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill. (form CR-457-A.)

Title: **Hobart Welding Electrodes and Welders' Vest Pocket Guide**

Subject: This pocket size booklet gives information on metals and electrodes, types of electrodes, four essentials of proper welding procedures, color marking for identification of electrodes, types of joints, typical positions, standard steel shapes, characteristics of the fillet weld, causes of common welding troubles, average electrode consumption, handy reference information, and complete information and instructions for using all Hobart electrodes.

Where to get: Hobart Brothers Co., Box EW-161S, Troy, Ohio. (Free)

Title: **Tweco Products Catalog**

Subject: A new 12-page catalog illustrates and describes the complete line of Tweco electrode holders, ground clamps, cable connectors, terminal connectors, cable splicers, mechanical and solder type cable lugs, carbon electrode holders and the new "lug-set" block and punch for attaching solder type lugs to cables without solder. It contains information about the care and maintenance of electric welding cables and connections.

Where to get: Tweco Products Co., P. O. Box 666, Wichita, Kan. (Free)

Title: **Shovel Catalog**

Subject: A new catalog on manufacturer's model 2000, 25 ton crane and 1¼-yd. shovel has just been released. Twelve pages of details and photographs with a full color cover, describe the machine. Included are pictures showing how the plunger drum clutch operates, and how swing clutch linings can be replaced. New features explained for the first time are a new shovel crowd chain arrangement and a swivel type dragline fairlead. Individual diagrams show working ranges for crane, hoe, and standard and high lift shovel front end attachments. Crane capacity chart covers the full lifting range.

Where to get: Manitowoc Engineering Works, Manitowoc, Wis. (catalog 20-51)

Title: **Motor Grader Operator's Handbook**

Subject: This 12-page handbook offers adjustments and techniques that apply to jobs ranging from high bank cuts to flat bottom ditching. Written as an educational piece the booklet is published in four-color cartoon style. As voiced by the experienced operator who serves as instructor throughout the booklet, "Motor graders lend themselves to skillful operation, and the good operator's ability will be quickly recognized."

Where to get: Caterpillar Tractor Co., Peoria 8, Ill.

Title: **Power Facts Book**

Subject: An unusual facts book has been produced to acquaint industry with the savings and original equipment performance that is possible in rebuilding and remodeling power equipment. Using a photo-narrative style, the book takes the reader on a typical problem tour of the plant, describing the methods developed whereby Diesels, generators and motors are stripped to the original cast and then rebuilt or redesigned for special need. Departments covered include engine remodeling and rebuilding, machining and testing, electrical fabricating, and the shop repair and conversion facilities.

Where to get: BFM Industries, Inc., 2124 Mill Ave., Brooklyn 34, N. Y.

Title: **1949 Minerals Yearbook**

Subject: A basic source of information on domestic and foreign mineral commodities, published annually by the Bureau of Mines, is now available for distribution. This issue, containing complete data for the year 1949, as well as comparative data for earlier years, has been improved by new summary tables on domestic mineral production. The new national totals pertain exclusively to the production from domestic mines. In previous issues of the yearbook they

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included in some instances mineral products made in this country from imported raw materials. Also, the value of United States mine output, as now constituted, is limited to the 48 states and the District of Columbia. Previously Alaska and Hawaii, together with Puerto Rico and other possessions, were included. The territories and island possessions now appear in separate tables. The 1949 issue contains 1,635 pages of text plus a 26-page index. The commodity reviews, written by specialists in their respective fields, deal with metals, nonmetallic minerals, and mineral fuels. They are based on information obtained from producers, processors, and consumers of minerals, government agencies, scientific and professional journals, and trade associations. State reviews, written by experts in the field, cover gold, silver, lead, and zinc mining in the principal producing states. A separate section deals exclusively with foreign minerals production.

Where to get: Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. ($4.50)

Title: **Pile Hammers on Bridge Project**

Subject: The methods of building the foundations and driving the piles for the construction of the Chesapeake Bay bridge are described in a bulletin recently prepared by the manufacturer, who supplied 20 single-acting and double-acting pile hammers and extractors for four contractors engaged in the work. The illustrations in the bulletin include a birds-eye drawing of the bridge and its approaches, an elevation sketch of the bridge, which is to be the second longest in the world, and more than a dozen views showing the methods of driving the piles for the deep water piers and suspension bridge anchorages and successive steps in the process of the construction of the bridge.

Where to get: McKiernan-Terry Corp., Dept. 109, 15 Park Row, NYC 38, N. Y. (Bulletin 62)

Title: **Tractor Attachments**

Subject: Attachments designed to work with Allis-Chalmers tractors described in Bulletin No. 895 include the engine-mounted hydraulic control bulldozers, gradebuilders and root rippers and three cable control units. Specifications are listed showing the moldboard height and width, height of lift, depth of cut, degree of tilt, weight of blade and mounting, and over-all length of tractor and blade, for all models.

Where to get: Baker Manufacturing Co., Springfield, Ill.

Title: **Pipe Booms for International Tractors**

Subject: The part International crawlers play in handling every phase of the pipelaying business is presented in picture-caption style. In addition, the two-color 12-page booklet contains a Selectograph showing the lifting capacity of each size of tractor when working with a matching Superior pipeboom.

Where to Get: Consumer Relations Dept., International Harvester Co., 180 N. Mich. Ave., Chicago 1, Ill. (Form No. CR-113-A.)

Title: **Hough Front End Loader**

Subject: Bulletin presents features such as the full-reversing transmission, operator visibility and safety, full hydraulic bucket control, power booster steering and unit-design of the HY. Many action views and complete specifications are given for this 1¼ cubic yard capacity machine.

Where to get: Frank G. Hough Co., Libertyville, Ill. (Free)

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PAYLOADS

This new Erie Catalog makes it possible to quickly choose, from the 4 classes of Erie 2-Line Buckets, the right bucket for your crane and material. Perhaps your crane can operate a larger bucket, for Erie alloy welded steel buckets result in greater payloads through scientific bucket weight reduction. Remember, that on bucket work, the cost of the crane and the operator all ride on the bucket. Send for this helpful catalog or outline your conditions and our engineers will make recommendations.

Write for Catalog **2L-1** *Today*

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STEEL CONSTRUCTION COMPANY
421 GEIST RD., ERIE, PA

Notes from the manufacturers

American Brake Shoe Co., NYC 17, N. Y. announced appointment of Eads Johnson, Jr., as executive vice president of the Southern Wheel Division. He was formerly assistant vice president. Johnson started with Brake Shoe in 1934, after his graduation from Yale University. He entered sales work for the company's brake shoe and castings division in 1935. In 1949 he transferred to the sales department of southern wheel division and in 1950 became assistant vice president of that division.

Caterpillar Tractor Co., Peoria, Ill., reports two appointments in the service department. Victor A. Woodling has been appointed service development manager and Robert H. Hawkins succeeds Woodling as dealer publications supervisor. An electrical engineering graduate of Purdue University, Woodling joined Caterpillar in 1946. Since 1946 he has been a college graduate trainee, a service development division trainee, supervisor of service training and dealer publications supervisor. Hawkins is also a Purdue graduate holding an M.S. in electrical engineering. He served on the electrical engineering faculty there following graduation. Since joining Caterpillar in June, 1950, Hawkins has been an instructor in service training.

Chain Belt Co., Milwaukee, Wis., is constructing a new 100x111-ft. warehouse in Portland, Ore., to provide expanded facilities for servicing the Pacific Northwest. The company has had a Portland warehouse for about 28 years, and has specialized in chains and conveyors for the lumber and pulp mill industries. Besides housing increased stocks of chain, sprockets, power transmission equipment, take-ups, elevator buckets, belt conveyor idlers, and spray nozzles, the new building will also contain the company's Portland district sales office. A railroad spur to the loading platform, truck loading and unloading facilities and ample car parking space will facilitate better customer service.

Cleco Division of Reed Roller Bit Co., Houston, Texas, has announced the appointment of Sigurd Stave, Kengensgate 10, Oslo, Norway, as distributor for Cleco products in that area. They also announced the appointment of House of Pfaff, Inc., 10-36 49th Ave., Long Island City 1, N. Y. as distributors of Cleco products in that area. Pfaff will handle the complete lines of Cleco and Dallett air tools and accessories.

Detroit Diesel Engine Div., GMC, Detroit, Mich., reports a $1 million building expansion program to increase production facilities. This is the eighth major expansion the Division has made and adds almost 80,000 square feet to the one million square feet now under cover.

General Electric Co., Schenectady, N. Y. announces the formation of six new operating divisions. They include the Turbine Division and the Motor and Generator Division, both with headquarters at Schenectady, N. Y.; Transformer and Allied Products Division, with headquarters at Pittsfield, Mass.; Measurements and Industrial Products Division, with headquarters at Lynn, Mass.; Switchgear and Control Division, with headquarters at Philadelphia, Pa.; and the Component Products Division, with headquarters at Fort Wayne, Ind. Together with the recently announced Defense Products Division, the six new divisions include the majority of the departments which constituted the former Large Apparatus Division and Small Apparatus Division. The following men were appointed general managers of the divisions: Glenn B. Warren, Turbine; James M. Crawford, Motor and Generator; Francis E. Fairman, Jr., Transformer and Allied Products; George E. Burens, Switchgear and Control; Harold E. Strang, Measurements and Industrial Products; and William C. Wichman, Component Products.

B. F. Goodrich Co., Akron, O., has named Harold Williams as special representative in Washington, D. C., for the industrial and general products sales department. With the company 18 years, Williams started as a production scheduler and joined the industrial products sales division in 1943. Since 1946, he has been a sales representative of B. F. Goodrich Chemical Co. in New York and Washington. He is a graduate of Alabama Polytechnic Institute.

Timken Roller Bearing Co., Canton, Ohio announces the appointment of George T. Humphrey, Jr. to the post of assistant general manager of the Service Sales Division. Humphrey, who leaves his post as assistant branch manager of the

TO ADVERTISE: All advertising in this section is payable in advance. Rate: 60c per line, or $7.20 per inch of 12 lines. Minimum charge $2.40. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date — 15th of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

Bucyrus-Erie 750-B. Good operating condition. East central location; inquire Box 3460 c/o EXCAVATING ENGINEER.

FOR SALE

750-B BUCYRUS-ERIE 16 cu. yd. electric shovel, full Ward-Leonard.

This machine will become available in September, 1951. Good stock of spare parts. Located in Middlewest. Inquiry Box No. 3438, c/o EXCAVATING ENGINEER.

Lima 1201 — 2½ yard diesel shovel including spare dipper and handle. Three years old, good operating condition. Located Northern Minnesota. Box 3458

Bucyrus-Erie 10-B shovel w/International UD-6 diesel engine, independent boom hoist used 400 hours, new in July.
601 feet Barber Greene 24 inch truss conveyor and 24 inch 16/19x3000 lb. tensile rubber belt. Roller bearing rolls. One 7½ H.P. electric drive, and one 20 H.P. electric drive, gravity and screw takeups. Conveyor purchased in July 1951 and good as new. Three spare new electric motors.

Sheldon Slate Products Co., Inc.
Middle Granville, N. Y.

Northwest model 25; 6; 80D; 95. Manitowoc 4500; 4500 new — will rent. Bucyrus 54-B; Monighan 8W; 7W; 9W; 450.

A. W. Nevers Phone 32 Mt. Pleasant, Iowa

Bucyrus-Erie 10-B dragline w/bucket No. 17399 Buda gas engine overhauled 1950; includes backhoe attachment 3 years old. Total price $7500 cash. Also 1944 KB-7 dump truck and home-made heavy low trailer for sale at $1000. Will sell 10-B complete w/truck and trailer for $8000.

Mrs. R. C. Henderson, 125-4th Ave., Marion, Ia.

Bucyrus-Erie model 15-B ½ yd. shovel w/International UD-9 diesel engine. Machine is four years old. Good condition. Sale Price F.O.B. Louisville, Ky. $11,500.

Brandeis Machinery & Supply Co.
Brook and Warnock Streets Louisville, Ky.

Used Bucyrus-Erie Model 51-B two-cubic yard shovel; standard equipped; 30" threads; Caterpillar D-17,000 power; current model, new 1947; located Denver, Colorado. Box 3462

Bucyrus-Erie Mdl. 54-B stripper w/2 yd. front and 70ft boom—excellent condition.
Lima 2½ yard Hi-Lift shovel—new November 1949. Excellent condition.

Brandeis Machinery & Supply Co.
US Hi-Wa 41 N. at Diamond Ave.
Evansville, Ind.

Bucyrus-Erie model 29-B shovel and backhoe combination complete with Caterpillar D-8800 engine. Good condition. Price $11,900 F.O.B. Kentucky.

Brandeis Machinery & Supply Co.
Brook & Warnock Sts. Louisville, Ky.

Sauerman 2-cubic yard Crescent light weight scraper bucket complete with teeth, model U.S.-780. Used one week. Price—$1311 f.o.b. Mulberry, Florida.

R. H. Clark Equipment Co., Inc.
Mulberry, Florida

Bucyrus-Erie 22-B shovel attachment, new, unused; contact D. D. Kennedy, Inc., P. O. Box 278, Bellwood, Illinois, or phone Hillside 2820.

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Six (6) Model 25 FTD EUCLIDS with Bottom Dump Wagons 165 H.P. Cummins diesel engines. All units rebuilt in our shop. Tires ranging from good to excellent. Will sell individually or in one lot.

Write or phone for prices.

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New unused D4 60" Caterpillar tractor, APR-9F5781 equipped with PD4 Trackson pipe-layer and AFH4 Anglefiller No. 720.

W. C. Sykes Co., 197 Frankfort St. Rochester 4, N. Y.

7000 feet shielded preassembled aerial cable, 5 KV 2-0, three conductor w/copper shielded tape. Used, but in good condition. Corona resisting rubber insulation Box 3461

International TD-40 tractor and Bucyrus-Erie Model 51 four-wheel scraper.
Metalweld air compressor 105 cu. ft.
Allis-Chalmers bulldozer Model E.

D. M. Stoltzfus & Son, Inc. Talmage, Pa.

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Experienced Salesman-Manager, sand and gravel plant. $500 per month, car furnished. References required.

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Looking for a job as master mechanic or traveling mechanic. Will also take a job as shovel crane or dragline operator—must be steady job. Do not care too much to go outside of the USA. Can rebuild any and all machines. Can also run concrete mixers. 40 years experience. Box 3459

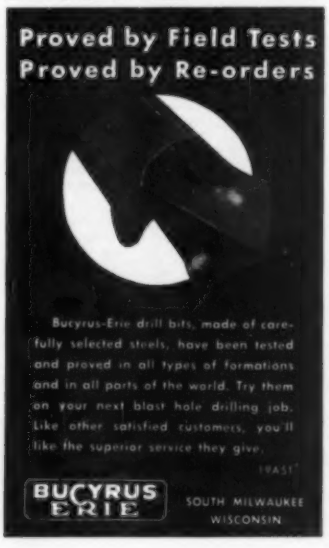
Coal strip-mine superintendent. 17 years experience as engineer and superintendent. Supervisory experience on all types of shovel and dragline, from ⅝ to 45 cu. yds. Willing to go anywhere in U. S. Will furnish references if requested. Write 763 East Market Street, Cadiz, Ohio or phone 467-X.

Position wanted as shovel, dragline, clamshell or pile driver operator. Have operated gas, steam and diesel large and small machines. Prefer steady work. P. O. Box 8, Hurricane, West Virginia. Phone 2224-Hurricane.

If you are Buying or Selling Used Equipment this is the place to let the Excavating Industry know about it.

Service Sales Division of Dallas, Texas, was instrumental in developing Timken distribution centers in Mexico, and in promoting Timken rock bit sales in that country. Humphrey studied mechanical engineering at Southern Methodist University before joining the company in 1939. Humphrey will assume his new duties at the Canton office on the 1st of November.

White Motor Co., Cleveland, Ohio, announces the formation of a new industrial sales division to develop new markets for component units of White trucks and buses. Milton W. Brooks has been named sales manager of the division which will have its headquarters offices in Cleveland. For the past three years, Brooks has been a regional sales manager for Cummins Engine Co., Inc. He previously had been associated with the American Locomotive Co. and Baldwin Locomotive Works in sales engineering assignments. He attended Massachusetts Institute of Technology and Brooklyn Polytechnic Institute. The company also has named Roderick H. Clarke as sales manager of the Sterling Division in Milwaukee, Wis. Clarke came to the Sterling Division of White from Autocar Co., where he had been assistant to the president and before that district sales manager for southern California. Clarke is a member of the Society of Automotive Engineers, the Army Ordnance Association and the Defense Transportation Association. He is a graduate of Montana State University.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McChord Air Base

Continued from page 30

Cables circled the culvert and were attached to each tractor-crane team. Utilizing the two-way radio between his car and other pieces of equipment in conjunction with a loudspeaker system, J. A. Woodworth, vice president of the contracting firm, personally directed the final operation.

The tractors took up the first tension, while blocks were pulled from under the culvert. The crawlers then backed up, maintaining a tight line while the long tube began its slow roll down the short "ways."

After it was eased into the channel, the pipe was pulled into line against four marker pilings. The cranes handled this step of the job. Winches, attached to the center line at each end of the 1,500-ft. tube, pulled the ends into place.

As the long steel culvert began to settle in the water, the cranes and tractors, working as directed by radio, gently jostled the pipe over until it finally lay straight and plumb. The operation—one of the largest of its kind—was a success.

Position Second Culvert

Work on the second culvert was started immediately and the pipe was ready for "launching" 15 days later. The only bad moment during the second operation came when one cable, attached to a tractor, "hung up" while the cranes were pulling the culvert across the narrow pool and into position. The cable was cut and a bulldozer gave the culvert a nudge to get the fouled section floating.

As soon as the second culvert was in position, clamshell and dragline equipped cranes began backfilling on both sides and top to cover the big pipes to an approximate depth of eight to 10 feet. The fill was completed with tractors and scrapers. After the culverts were set and the excavating and paving completed, the 6 x 6 bracing was removed. Clover Creek was diverted through the new culverts.

When the runway with a 20-in. base course and a 3½-in. black-top surface is completed, the new installation will be more than 10 feet under the runway grade. The two culverts were designed to discharge water at a rate of 500 fps without increasing the backwater above normal conditions. In event of a flood of sufficient magnitude to cause a 2-ft. surcharge, the discharge rate would be doubled.

The runway extension, totaling 6,200 feet, is being accomplished under two contracts. The one awarded to Woodworth was for $589,919, and the Pacific Sand and Gravel Co., Centralia, Wash. contract was for $624,099. To complete the runway extension on the two contracts there were eight electric C-Roadster Tournapull scrapers, one super C diesel Tournapull scraper, four LeTourneau "W" scrapers, three La-Plant-Choate T-300 motor scrapers, nine D8 Caterpillar tractors and bulldozers, one D6 bulldozer, one Allis-Chalmers HD-19 bulldozer, eight Mack trucks, one 605 and one 304 Koehring shovel. They were engaged in a cut and fill operation.

Over 700,000 yards of material were excavated and used as fill to balance out the runway grade. At the southern end of the runway, 526 acres of virgin timber are being cleared for the approach area. Three portable saw mills were set up by the contractor, Lige Dickson Co., of Tacoma, on an $89,888 contract. Equipment used to accomplish the clearing includes one Allis-Chalmers HD-14; one International TD-14, four Caterpillar D8, one D4, and one D7, all crawler type tractors equipped with land clearing bulldozer blades. On the logging operation equipment included three International TD-14, one Allis-Chalmers HD-10, and one Caterpillar D2; one Bucyrus-Erie crane, for loading logs and two Link Belt speeders for loading logs and piling brush. Approximately 14 portable hand power saws of Tieton, Thor, and Malls makes were used.

The culvert installation was completed in April and clearing, grading, and leveling under all three contracts followed simultaneously. The standard design was used to determine load-bearing capacity of the culverts. The culvert construction is designed to withstand the weight of the fill, runway, and impact of landing planes. Paving of the new runway and taxiway was completed in June. Separate contracts for lighting, and other utilities are in process.

McChord Air Force Base, important during the early part of the Korean emergency as a Stateside base for the "Tokyo Air Lift," will be one of the most modern and important air bases in the country upon completion of the present construction program.

is in the picture when the going gets *Rough*

Armored to resist highly abrasive conditions, Wire Countered Primacord is recommended for use as *down* lines in deep, ragged holes. The wire countering increases the tensile strength of the Primacord, and gives it added protection during loading operations.

The four grades of Primacord enable the blaster to meet every condition encountered in coal stripping, open-pit mining, quarrying, pipe-line river crossing, marine work, coyote tunnels, etc. Flexible, easy to hook up and handle, waterproof and insensitive to stray electrical currents, Primacord is the ideal detonating agent — the modern way to better output, greater economy.

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On your scraper the *cable* has a lot to say about *control*—control of the cut, yardage per load, round trips per hour, cost per job. To follow through on these opportunities for fast, economical production, see that *Preformed* Yellow Strand Special Scraper Rope goes aboard each earthmoving machine.

The operator gets *accurate* response with this smooth-running cable. It's limbered to take short bends and sudden shocks . . . to spool evenly . . . to handle safely when the line is shifted. Special lubrication equips the rope for rugged wear and exposure.

Your B & B distributor will gladly work with you to standardize on *Preformed* Yellow Strand Special Scraper Rope and to maintain a balanced supply of spares. See him, too, for long-lived hoist and drag lines.

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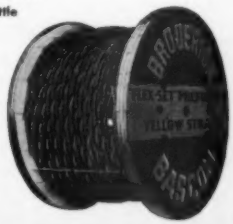
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